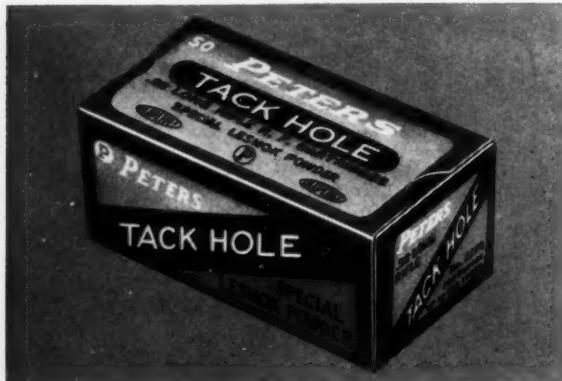




1 "POLICE MATCH" .38's—starting off the 1938 season with two new world's records in the National Mid-Winter Championships, Police Match .38's hung up win after win . . . at Detroit, Philadelphia, Dallas, Camp Perry, Miami and many other important meets. Highlight: Leo Allstot, Mason City, Iowa, winning 10 of the 14 1sts, and tying the world's record at North Iowa Pistol Tournament.



2 "TACKHOLE" .22's—had a long record of outstanding wins in 1938. Highlights: National Mid-Winter Championships—7 1sts, 8 2nds, with E. N. Moor, Jr. establishing the St. Petersburg record in the Individual Dewar Match with 400 x 400. Southeastern Small-Bore Championship—R. C. Pope winning with 978. Southern California League Matches—Otto C. Markman, 975 x 1000. Camp Perry—Charles Hamby, Dewar Match Course 398, 25 X's.

3 "TARGET" .22's—youngest member of the Peters line-up, Target .22's set a fast pace throughout 1938 . . . taking many places in Small Bore Rifle and Pistol Matches from coast to coast.



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REG. U. S. PAT. OFF.
PETERS CARTRIDGE DIVISION Remington Arms Co., Inc., Bridgeport, Conn.
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LET'S RAISE OUR SIGHTS!

- AS A SHOOTER'S skill improves he raises his sights and moves his target forward to greater ranges.

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Greater prestige and more worth-while prizes fall to the lot of those who have the courage to raise their sights and increase the range of their activities.

The organized rifle and pistolmen of our Nation—who are the National Rifle Association of America—are ready now to raise their sights and increase the range of their activities in 1939.

Even in the difficult year just closed your Association showed a net increase of 10% in new clubs, 5%

individual members, 118% in Registered Tournaments; continued its successful fight for sane firearms legislation; secured nation-wide acknowledgement of the place of rifle and pistol shooting as a sport through radio broadcasts and newspaper publicity; and secured the permanency of the Association's prestige in the Nation's Capital by acquiring a home of its own which will result in a material saving in rent and improvement in operating efficiency.

We have improved our skill and our equipment. Let's raise our sights, extend the range, increase our volume of fire! Let us set up our target at 75,000 individual members for 1939! We refused to be "licked" by the Nation's worst depression in 1930-36, we forged ahead in the "recession" year of 1938—accept the challenge—75,000 individual members and greater victories for 1939!

National Rifle Association of America
Barr Building (After January 21st address 1600 Rhode Island Ave., N. W.)
Washington, D. C.

BROTHER SHOOTERS:

You bet I accept the 1939 Challenge! I'm raising my sights for the greatest year in American shooting history—and I'm taking my first shot for record right now! Here is the application for membership of a good 100% American citizen who feels as we do that rifle and pistol shooting should be perpetuated as the Typical American Sport. See that he receives **THE AMERICAN RIFLEMAN** every month.

His remittance of **\$5.00 for 2 years,**
 \$3.00 for 1 year is enclosed.

THE NEW MEMBER

Name Age

Address

City State

Application endorsed and forwarded by

Name

Address

City State

Status: Annual Member Life Member Club Officer

Remember that anyone who is not satisfied with his National Rifle Association membership can get his money back, every cent of it, merely asking for it within 90 days after his application has been accepted!

HERE THEY ARE ~

START the New Year on the firing line of your favorite range. Take this opportunity to enter the January Matches of the Gallery Postal Match Season. Among the five matches scheduled for this month there is certain to be one or more that fits in with your own particular type of shooting fun. If you are a Tyro with either the long or the short barreled gun you can find your match in this list. Or if you like to win your medals the hard way try the Standing Rifle Match. And two open events are offered for the pistol shooters, one timed and one slow fire.

Remember, you don't have to win the match to receive a medal. State Championship medals are awarded for each state having five or more entries. Besides these special awards Match No. 5 is classified and that means medals in each division according to the value of your equipment.

Now that the rush of the Holiday Season is over what better way to relax than with your cheek against the well-polished stock of that old favorite shootin' iron. Take your choice of the January matches. Just place the number of the match, or matches, you select on the entry blank at the bottom of this page. It's as easy as that.

Postal Match Division,
National Rifle Association,
Washington, D. C.

Date.....

GENTLEMEN:

Please enter me in the 1938-1939 N. R. A. Gallery Home Range Matches which I have listed below. I want to enter Matches Numbered

I enclose remittance of \$ to cover my entrance fees at \$1.00 per match.

NAME.....

ADDRESS.....

CITY.....

STATE.....

I HAVE MADE PREVIOUS ENTRY IN THE 1938-1939 N. R. A. HOME RANGE GALLERY MATCHES.

JANUARY MATCHES

Entries Accepted Until Jan. 15

No. 4—Standing Rifle Match
50 shots at 50 feet any sights—open to any .22 caliber "free rifle."

No. 5—Tyro 50 Foot Rifle Match
(entry 50¢)
50 shots, metallic sights, prone position. Separate awards are provided for each of the following classes: I. Shooters using rifles valued at more than \$50.00, including all attachments; II. \$25.00 to \$50.00; III. less than \$25.00.

No. 6—Tyro 20 Yard Pistol Match
(entry 50¢)
40 shots—slow fire

No. 7—Timed Fire 50 Foot Pistol Match
40 shots—timed fire

No. 8—Slow Fire 20 Yard Pistol Match
40 shots—slow fire

FEBRUARY MATCHES

Entries Accepted Until Feb. 15

No. 9—Rapid Fire 50 Foot Pistol Match

No. 10—Timed Fire 20 Yard Pistol Match

No. 11—Metallic Sights 50 Foot Rifle Match

No. 12—Women's Intercollegiate Championship

No. 13—Tyro 75 Foot Rifle Match (entry 50¢)

MARCH MATCHES

Entries Accepted Until March 15

No. 14—Women's Rifle Championship

No. 15—Any Sights 75 Foot Rifle Match

No. 16—Military School Championship (entry 25¢)

No. 17—Tyro 50 Foot Pistol Match (entry 50¢)

No. 18—Rapid Fire 20 Yard Pistol Match

APRIL MATCHES

Entries Accepted Until April 15

No. 19—Any Sights 50 Foot Rifle Championship

No. 20—Metallic Sights 50 Foot Rifle Championship

No. 21—Any Sights 75 Foot Rifle Championship

No. 22—Junior Open Championship (entry 25¢)

No. 23—50 Foot Pistol Championship

No. 24—20 Yard Pistol Championship

No. 25—Scholastic Rifle Championship (entry 25¢)

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MAN'S SIZE TARGET STYLES—MEDIUM WEIGHTS AND PRICES

In all ways a man's full size target shooting design, Model 75 provides comfortable fit and handling for adult shooters. Choice of three styles, as covered in the paragraph on sights. Weights sufficient for fine shooting; yet light enough for junior shooters and women, in all regulation positions. All three styles at medium prices.

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Receiver and action of completely new Winchester design. Speed lock with only .2" of firing pin travel. Receiver recessed for bolt front—bolt is locked in when closed. High back receiver wall at loading well, adds stiffness, reduces vibration. Trigger pull adjustable when stock is removed. As furnished, has crisp, snappy let-off at standard N. R. A. pressure. New push-pull thumb-lever safety, on right. Barrel 28", straight taper from $\frac{1}{2}$ " to $\frac{1}{4}$ " approximately. Bored, chambered, rifled and lead lapped to fine Winchester target standards, for .22 Long Rifle rim fire cartridges. Drilled and tapped for telescope-sight mount bases. Clip-type 5-shot magazine.

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One-piece black walnut stock, of latest Winchester target design. Steel butt plate with sharp checkering. Semi-beavertail forearm, with adjustable barrel band and sling-strap forearm adjustment adopted from Winchester Model 52. Tan leather Army type sling and bow swivels.

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George H. Mason, Gen. Mgr.

THE AMERICAN RIFLEMAN

COMING

IN THE OPINION of Allyn H. Tedmon, one of our keenest and most experienced riflemen and hunters is C. E. Howard, of North Park, Colorado. Although he has played an important part in the development of modern high-intensity ammunition and rifles, Mr. Howard is a busy rancher and not given to blowing his own horn, and is probably not as well known among the shooting fraternity as he deserves to be. Mr. Tedmon has undertaken to remedy this condition in an article on Mr. Howard which he recently prepared for us. We feel sure our readers will like this article, and we plan to run it soon.

On hand for early publication is a good, practical article on scope sights by C. Wray Hageman. Mr. Hageman has for years been closely associated with the manufacture of scope sights of different makes, and thoroughly understands the practical aspects of the problem. His article should interest all users of scope sights, and particularly beginners and others with limited knowledge and experience of the subject.

While by many the lever-action rifle is considered quite out of date and not worthy of passing notice in these modern times, for certain types of hunting it is still regarded as the best rifle by many hunters of wide knowledge and experience, thousands of whom will use nothing else for deer and similar game. And so to give credit where credit is due, and define the sphere of usefulness in which these old-time favorites still hold their own, we asked Col. Townsend Whelen to write for us a comprehensive article on lever-action rifles and their ammunition—both old and new. Though the good Colonel is today an ardent bolt-action user, he for many years used lever-action rifles in the hunting fields, and killed many large and small game animals with them. He is therefore able to accord the lever-action its true place in the present-day scheme of things, without prejudice or one-sidedness. His article will run in two parts, the first part—on rifles—being lined up for an early issue.

VOLUME 87

JANUARY 1939

NUMBER 1

CONTENTS

COVER PHOTO

Taken in the shops of the National Target & Supply Co., Washington, D. C. Picture shows their stocker, John Hutton, formerly of Griffin & Howe, checkering a rifle stock.

POWDER SMOKE	4
BLACK JUDAS	5
BY BERT POPOWSKI	
A THEORY OF RECOIL (PART II)	8
BY ROBERT H. S. HUGHES AND HOWES BODFISH, M.S.	
HOW GUNS ARE MADE	10
BY A. P. CURTIS	
THE SPECKSIONEER	12
BY "JUSTASHOOTER"	
THE MODERN RANGE	15
BY WALTER F. ROPER	
HOME GUNSMITHING	16
BY "PROFESSIONAL"	
THE BIG SMOKIES	18
BY F. C. NESS	
THERE IS A LIMIT	22
BY ALYN H. TEDMON	
IMPROVING YOUR SCORE	27
(Concluded from December Issue)	
BY FRANK WYMAN	
GUN ACCIDENTS	29
BY W. F. SHADEL	
TEACHING A SMALL BOY	30
BY H. G. ENTERLINE	
THE 1873 IN .22 CALIBER	33
BY OTTO A. WAGNER	
THE OLD COACH'S CORNER	34
OVER THE NEWS DESK	38
DOPE BAG	47
ARMS CHEST	51

PUBLISHED BY THE NATIONAL RIFLE ASSOCIATION OF AMERICA

OFFICERS OF THE ASSOCIATION: GUSTAVUS D. POPE, President; LT.-COL. L. W. T. WALLER, JR., First Vice-President; LT.-COL. N. C. NASH, JR., Second Vice-President; MAJ.-GEN. M. A. RECKORD, Executive Vice-President; C. B. LISTER, Sec'y-Treas. and Managing Editor, THE AMERICAN RIFLEMAN. STAFF OF THE ASSOCIATION: L. J. HATHAWAY, Editor, THE AMERICAN RIFLEMAN; F. C. NESS, Associate Editor and Technical Division; W. F. SHADEL, Associate Editor and Public Relations; F. A. MOULTON, Advertising Manager; H. H. GOEBEL, Club Service and Junior Division; L. Q. BRADLEY, Membership and Circulation; F. M. HAKENJOS, Extension; F. L. WYMAN, Competitions

Published monthly by the National Rifle Association of America, Barr Building, Washington, D. C. Domestic rates, including North, South and Central America, \$3.00 a year; \$5.00 for two years; elsewhere, \$3.60 a year; \$6.50 for two years. Entered as second-class matter, April 1, 1908, at the Post Office at Washington, D. C., under Act of March 3, 1879. Copyright, 1939, by the National Rifle Association of America. Thirty days' notice required for change of address. Unless otherwise requested, new subscriptions are entered to begin with the issue following the month in which subscription is received.

POWDER SMOKE

DEFENSE

1939 IS APPARENTLY going to be one of those years, recurrent in American history, in which the United States devotes itself seriously to the improvement of its national defenses. We shall hear much about warplanes, battleships, motorization and mechanization, big guns, anti-aircraft weapons, war reserves, industrial mobilization, and all the other spectacular or high-sounding things that make good newspaper headlines and redundant phrases for speeches—political or otherwise. All of which is as it should be, because nothing short of the spectacular and rhetorical has ever been successful in arousing this great, self-sufficient, peace-loving nation of ours from its indolent attitude toward national defense.

BUT—behind all the fan-fare concerning the obvious, lies the threat of the obscure. Of what value the plans for the finest, largest battleships, if we lack the shipyard staffs and mechanics to build them? What value ten thousand warplanes, without the pilots to fly them or the ground crews to keep them aloft? What value elaborate plans for industrial mobilization, if the sabotage of two or three power plants or transmission lines can deprive a whole region of power and light? What value all the fleets of ships and planes, the light and heavy artillery, the motorization and mechanization, without the doughboy to go in—and *stay in*—to win the war? What value the best infantry rifle in the world, if it cannot be manufactured good enough and fast enough to equip the men on whose shoulders rests the decisive fight? What value the best small arms in unlimited supply, without men trained as individual marksmen to use their guns intelligently, efficiently, and with the high morale and initiative which comes only from *confidence*? The “superiority” of the semi-automatic rifle over the manually operated Springfield is a meaningless term unless the individual soldier is trained to utilize the increased rate of fire effectively against proper targets.

We cannot escape the feeling that there is much of the incongruous, per-

haps something of the pathetic, in all this talk of large appropriations for defense, while scores of Regular Army and National Guard rifle ranges lie idle because they have been decreed to be “unsafe” for small-arms training with MI ammunition, and Regulars, National Guard, Reserves, and Civilians alike are held down to an ammunition allowance that is absurd in its inadequacy. For of all the tools of national defense, small-arms ammunition is the least expensive. Unfortunately, perhaps, it is also the least spectacular.

We are no zealots. We have no idea that future wars can be won without domination in the air, and in range and weight of metal in artillery fire. Motorization and mechanization are essential. Signal services need vast expansion and material improvement. Industrial mobilization in all its countless phases is vital. But all of these things without the foot soldier are as the framework of a building without the binding concrete poured around the reinforcing rods and girders.

Re-open the small-arms ranges! If men are properly trained before they go on the firing line, and properly disciplined while firing, any range with an adequate backstop is safe. Adequate training can be had with loads of less range than the MI. Let us make the relatively small increases in appropriations necessary to issue sufficient quantities of some kind of ammunition to the men in the Services and out who *want* to learn to shoot. Here is one phase of the national-defense program that is relatively inexpensive, that is *already* organized, and that *already* possesses manufacturing facilities far beyond present production. The Navy and Marines have found that small-arms training makes better gunners; the Air Corps knows that small-arms practice improves aerial gunnery; the Infantry believes that riflemen can give a good account of themselves against attack aviation—so why longer delay an adequate program of small-arms ammunition manufacture, of range construction, and of intensive, intelligent small-arms practice?

THE AMERICAN RIFLEMAN

VOL. 87

JANUARY 1939

NO. 1

BLACK JUDAS

By BERT POPOWSKI

I FIRST GLIMPSED HIM on a cross-country fishing trip. I had been hustling along to keep an overdue engagement, when my eyes fell on his home, a nondescript and homely wad of sticks jammed into the double crotch of an ancient willow tree. One head stuck truculently over the rim of that nest. That was Judas, as I later named him.

When I shinned up that tree, three beaks rose hungrily to the sky. The fourth young crow eyed me with cold disdain, knowing at that early age that I was neither mother, father, nor friend. He was bigger than the others, clad more warmly, and in every way evidenced the fact that he was the first of the brood to chip his way out of the restraining shell.

Those four young crows went home with me. For a fortnight they made noises of contentment midway between gurgling and strangling as I fed them milk-soaked gobs of bread. Then they started to mope, and, in the space of a week, two of them were dead, the usual healthy pink of their maws having turned an unhealthy gray.

A volume on the feeding of captive birds and animals was quickly found at the public library. Following its advice, a menu of ground liver was substituted. The birds swallowed this with indifference, but when I offered liver and kidney cut in small pieces their interest perked up. In worrying these bits of meat around in the dirt while getting the right grip on them, they naturally covered them with grains of sand. Whether this grit was just what their diet demanded, I don't know to this day, but their interest in life suddenly ballooned.

The two birds continued to consume their daily rations of kidney and liver until that unlucky day when one of them, intent on giving his wings a workout, hanged himself in the meshes of the chicken-wire pen in which they were housed.

The remaining bird, a fledgling no longer, was the one whose head I had glimpsed above the rim of his nest. Now he stalked about on arrogant legs, greedily gulped kidney and liver, and laid vicious black beak on any hand that tried to catch him. He was the swashbuckling representative of his clan; the king of his limited roost.

When I trimmed his flight feathers to prevent accidental escape, he squalled at the indignity. As I finished clipping one wing he plied beak and claws to free himself, but his expression of ludicrous dismay at flying in a four-foot circle in his bid for freedom, repaid me amply for the broken skin I suffered.

This was the time of the year when whole families of crows began to occupy consecutive fence posts, and it was only a matter of time before Joaquin Wilson and I hit upon the idea of using Judas for a decoy. When we first fastened his leathern legband to a stake, he squalled like a fiend and all but tore himself in two in his struggles. Then we hit on the idea of fastening a short length of tire-chain to the legband. This acted in the nature of a clog, and Judas' furious efforts to free himself from this encumbrance, plus the most raucous voice in all crowdom, attracted the attention of every crow in Brown County at one time or another.

Judas cursed me as I clipped his flight feathers; then stood off and coldly surveyed his surroundings



Many of those crows paid their lives for their curiosity, and it was only a matter of a week before Joaquin and I had to move our base of operations. The survivors seemed somewhat skeptical of Judas' continued difficulty with that clog, and refused to come within range. Coincident with this, Judas developed a streak of laziness, and refused to fight his clog with the same degree of violence and rauousness.

Our first move toward a remedy consisted of a stake driven into the ground. To the top of this was affixed a generous hunk of kidney—now considered a daily delicacy by our sable helpmate. Judas tackled this problem with considerable enthusiasm and such concentration that the meat lasted only a scant half-hour. Worse, he refused to utter a single squall while solving this problem, probably aware of the fact that other crows would also regard kidney as a delicacy.

Next we fastened a little cross-arm to the stake—a false perch which would fall away under his weight as he mounted it. It was fastened high enough above the ground so that it would swing past, and then its top end would protect the lump of meat on top of the stake. That was better, and a quarter of a kidney would occupy Judas for upward of an hour and a half. It peeved him to have that interfering stick in his way, and his outraged squawks brought many a black brother to his aid.

Whenever a strange crow would come near, Judas would ruffle his feathers and spend ten times as much time watching the invader—and cursing him in crow vernacular—as he spent on getting the morsel of food. The use of a crow call induced the same effect, for Judas would scan the



On the spot!

sky for the expected invading visitor, and then call him harsh names as he materialized in answer to the re-invoked summons.

One day we caged the family cat within a few feet of the crow. The immediate hostility between the bird and the feline was a living, breathing thing. Judas' yelling approached a hysterical pitch, while Tabby laid back his ears and hissed and spat in answer. When one of Judas' wild brethren pitched out of the sky to lend aid and succor, the morsel of kidney was forgotten as both crows heaped invective on the cat's blameless head.

For nearly an hour the two crows kept up a steady roar. By that time their clamor had attracted nearly a dozen others, who gathered to assist with this new danger to crowdom. When Joaquin laid low the second of these

newcomers with a carefully placed 100-grain bullet from his .250-3000 Winchester, the others billowed into the air, but returned immediately to continue their violent abuse of the cat.

They seemed to consider it a personal affront that one of their number had been slain by the invading cat—and at long range, too. Finally, one of the bolder ones mounted a post beside the roll of netting in which the cat was imprisoned. Joaquin shot that one, too, and the spat of the high-velocity bullet scared the cat. Its attempts to escape made the cage roll crazily about the meadow, and sent the crows into hysterics.

"Talk about your 'fool hens,'" murmured Joaquin, watching the shrieking maelstrom of black birds billow about the cat.

"We've got him on the run!" they shrieked triumphantly. "Come on, gang, let's finish off this trespasser!"

Finally they tired of their diving attacks, and, watching his chance, Joaquin let drive with another of his deadly 100-grain slugs. He got a double this time as two birds carelessly overlapped while pouring violent abuse on the hapless cat.

When we moved out toward the crows they broke in disorderly flight. So intent had they been on routing that cat, that gunfire had little or no effect on them; but the appearance of humans broke the spell.

From then on Judas and Tabby became standard equipment on our crow hunts. While they engaged in terrific bloodless warfare, Judas' wild relatives would wing to the rescue and produce an uproar that a band of paint-bedecked redskins would have envied.

There was a time when Tabby broke loose and streaked away in a welter of swooping crows. Judas added his frenzied cawing to the general bedlam, but whether it sprang from a wish to have his own nip of the flying cat's back, or a mourning of his departing hunting partner, we couldn't tell.

"There goes the best part of our decoy outfit," mourned Joaquin, as cat and crows disappeared in the brush at the edge of the river. When we got home and headed in at the back door with our kill of three ringnecks, there sat a wild-eyed and bur-decorated Tabby. It was at least six miles from town that we'd seen the last of that cat, and only a crow-inspired terror could have brought it home ahead of us.

Judas doing his stuff



Judas, too, slipped his shackle one day, and before we realized that he was free he was in the midst of his wild relatives. We gave him up for lost and mourned him sincerely, for he had given us the finest crow shooting that we'd been able to enjoy in years. But, even as we gathered up Tabby and Judas' leg-iron, the crow clamor broke out again. The flock came straight for us, and at its head was Judas—a desperate Judas who wanted only to come back to his human friends. That aluminum band on his foot had made him a conspicuous figure in the flock, which immediately turned upon him and drove him shrieking back to us. They would surely have killed him, as most wild creatures hunt out and persecute those of their species that do not conform to a set pattern of behavior or appearance.

He was a dejected figure, his plumage rumpled and disordered, as I approached him, and he offered no resistance to being caught and taken back to his comfortable roost. Once there he meticulously put every feather back in place, looking out at the empty sky at intervals, and cawing a hoarse warning as he did so. I imagine he was warning those crows that this was his home stamping ground and not to be lightly invaded.

Judas never forgot that indignity. His trust in his wild relatives was gone forever. Never again did he open wide his wings and croak a welcome as a sable brother dropped out of the sky. Instead he chose to regard each such visitor as a deadly interloper, and a savage note of warning characterized his cawing.

One day as I killed a visiting crow, the hollow-pointed 87-grain .257 bullet flung the carcass within reach of Judas, hampered as he was with his leg irons. With beak and claw he ripped at that carcass until he had doubled the terrific havoc made by the high-velocity bullet. He was, definitely, not in love with crowdom.

What Judas intended as a warning to other crows to keep their distance was more often than not misinterpreted as a warning against the cat, which was now an established part of our decoy set. When crows descended on the Judas-and-Tabby duo, Judas was the only calm one of the lot. The visiting crows would work themselves into a hysterical panic at the sight of him in the toils of some restraining contraption within a few feet of a hereditary enemy.

Judas poses with the cat



A few dead crows about the set never disturbed the visitors. Evidently they thought the cat responsible, and, on those rare occasions when they could make Tabby prowl about his limited quarters, their chief procedure consisted of faking dives at the cat, with the intention of frightening him into headlong flight. That failing, they soon tired of their power dives, alighted on nearby fence-posts, and contributed inviting targets for our marksmanship.

Shotguns, we found, were not as effective as rifles in this respect. In the first place, we would have to get within fifty yards of our two decoys in order to be consistently effective, and at that close range we attracted so much attention that usually after a half-dozen shots it was all off for the rest of the day.

When using rifles we parked our car from 150 to 200 yards away from the decoys, and, whenever possible, toward the sun from them. Then we would place a blanket over the windows on the sunny side of the car, effectively screening out the light and making ourselves almost invisible in the dark cave so created. The only remaining indication of danger lay in two protruding rifle barrels. Frequently only one of these was showing, as one of us watched proceedings through a pair of binoculars.

Complete immobility was the order of the day immediately following a shot. Then, when the two decoys again recaptured the unanimous attention of the visiting crows, we'd get into position for the next shot.



—And Joaquin gathers in another

Gone are the days when we used to drive madly about the countryside, skidding to a stop at every Jim Crow that decorated a fence-post, only to have it go kiting off to safety. Now we let those same Jim Crows come to us and put on a show for our entertainment. Sometimes the show is so good that we spend long minutes forgetting to center the crosshairs on our sable targets. But when we do, the 6x Fecker on Joaquin's Winchester 54 or the 4x Fecker on my custom-barrelled Remington 30S bring our targets up sharp and clear. Then there is a careful squeeze, followed by a whiplike crack, and—if we're fortunate—a similar crack at the point of aim, as high-velocity ammunition makes a shambles of another black egg-thief or nestling-murderer. Judas shrieks in unholy glee, and Joaquin and I grin at each other in self-congratulation.

A THEORY OF RECOIL

PART II

By ROBERT H. S. HUGHES and HOWES BODFISH, M.S.

IN THE NOVEMBER 1938 ISSUE of The American Rifleman we stated the theory of recoil issued in the days of powder and ball and showed the effect it would have on present day calculations. We then stated our own theory of recoil as follows:

"That the actual recoil is divided into two distinct parts, (a), recoil before ejection of the projectile and (b), recoil after ejection.

"The recoil (a) is that required to maintain the center of gravity of the system consisting of the gun, projectile, powder and powder products constant during the motion of the projectile through the bore.

"That the remainder of the recoil (b) (and major portion), is due to the reaction between the gun and the projectile after disengagement of the projectile from the rifling."

It was our original intention to discuss in this present paper the reasons why we do not agree with the presently accepted theory. However, comments from the readers of the first paper place us in a position where we do not know what target to draw down on. We understood that the present theory of recoil was based on the equivalence of momentum between the gun and the projectile.

In this most commentators agree, and we shall discuss it, but find it necessary to note that there is by no means perfect agreement on the point. Some engineers of good repute insist that any good computation must be based on the theory of the conservation of energy.

We have noted, since the first paper was written, a newspaper article in which the recoil of a railway mount was compared to that of a Pullman train being stopped from a speed of several hundred miles per hour, and a responsible individual tells us that one third of the energy of the powder is expended in recoil. These sound rather like the ancient computations resurrected.

Since it is necessary to fire at the bullseye rather than at the butts if you want to get hits, we have decided to adopt as our target the theory of recoil as stated by Maj. (now Lt. Col.) J. S. Hatcher in his *Text-Book of Fire Arms Investigation, Identification and Evidence*, 1935, pp. 301-307. His statement has the qualities of brevity and clarity, wide acceptance, and recent date, and, we believe, faithfully reflects the general knowledge of its date.

The theory stated is based on the assumption that the gun and projectile are entirely separate objects throughout the period of movement through the bore. From this it follows that the momentum imparted to the gun and the bullet are equal. Mathematically, this is stated:

$MV = mv$, in which we let
 v = the velocity of the bullet;
 m = the mass of the bullet;
 V = the velocity of the gun;
and M = the mass of the gun.

Then $V = \frac{mv}{M}$ that is, Equation (1)

the recoil velocity of the gun equals the bullet velocity times the bullet mass, divided by the mass of the gun.

Now let us apply a muzzle brake or recoil control of m_1 to the muzzle of the gun. Such devices, capable of reducing recoil (as measured on a ballistic pendulum) by more than 50 per cent exist. They have negligible effect on the muzzle velocity.

It follows that equation (1) above will become:

$$V = \frac{mv}{M + m_1}, \text{ and} \quad \text{Equation (3)}$$

the energy of recoil, corresponding to equation (2) will be

$$E = \frac{1}{2} (M + m_1) V^2 \quad \text{Equation (4)}$$

Now let us see what happens to equations (1) to (4) when we insert actual values. We assume we have a gun weighing 9.5 pounds, a bullet weighing 200 grains, and a muzzle brake weighing .5 pounds. The velocity of the bullet is 3000 foot-seconds. (This makes easier arithmetic than gun designers give us.)

Equation (1)

$$V = \frac{3000 \text{ times } 200}{7000 \text{ times } g} \text{ times } \frac{g}{9.5} = 9.0 \text{ foot-second.}$$

Equation (2)

$$E = \frac{1}{2} \text{ times } \frac{9.5}{32} \text{ times } 9 \text{ times } 9 = 12 \text{ foot-pounds.}$$

Equation (3)

$$V = \frac{3000 \text{ times } 200}{7000 \text{ times } g} \text{ times } \frac{9}{10} = 8.6 \text{ foot-seconds.}$$

Equation (4)

$$E = \frac{1}{2} \text{ times } \frac{10}{32} \text{ times } 8.6 \text{ times } 8.6 = 11.5 \text{ foot-pounds.}$$

But, the brake actually reduces the recoil by more than 50 per cent! Furthermore, it was installed beyond the muzzle.

Now, it is true there is more than one term in the full statement of the momentum theory of recoil. But the first term is the one that covers the gun and projectile, and it seems not to be accustomed to these new-fangled gadgets. We have been trying for several years to make it understand, and it still won't take care of the situation.

After months of study, we arrived at a new theory. We had to keep the center of gravity of the system constant during the travel of the bullet through the bore of the gun. A commentator objected to this, so we started a frantic search for precedent—and found that the idea is not new at all!

Col. W. H. Tschappat, *Ordnance and Gunnery*, 1917, page 315, says it is so, and uses it as a fact in developing his equations. We have shown that the term in the momentum theory that covers the movement of the gun while the bullet is in the bore, is inaccurate under the test of the muzzle brake. Consideration of the statement of the amount of recoil defined by condition (a) at the beginning of this article will show that the statement still holds under the conditions imposed by the muzzle brake.

But the most important point seems to be whether the gun and bullet may be considered as two separate things,

as is necessary if we follow the theory of equivalent momenta, or as a single thing, as in our proposed theory. We think that a bullet, engaged with the rifling of the gun under the pressure of the gases of the explosion, is a part of the gun; as is, for example, a rivet in a tank just before it is blown out by an explosion.

And now we have to get back to those additional terms in the momentum theory, as compared to our part (b) of theory of recoil. For an instant—but only an instant, we can agree. At the moment when the bullet disengages from the rifling, we have the bullet and gun in close proximity and separated by the column of expanding gases under the pressure of the explosion.

The exploding gases proceed to separate the two objects with a force which is measured by the rifleman with his shoulder, by the bullet with a further increase in velocity, and by the atmosphere with pressure and so-called sound waves, and the necessity of absorbing sundry gases, solids, and liquids.

We tried to show in our first article that the energy ejected at the muzzle—that is, the amount of energy remaining in the powder products at the instant of ejection—is the measure of the force causing the above effects, and that the *additional* energy imparted to the projectile is nearly equal to the energy of recoil as observed on a pendulum. This is what we should expect when two objects are being separated by a force which must act on both for an equal length of time over an equal distance.

Under the momentum theory, the effects of the gases and unexploded powder are dependent on their mass and velocity alone, and impart additional energy through their reaction with the base of the projectile and the surrounding atmosphere. We find, however, that Colonel Hatcher, in the before-mentioned reference (page 307), recommends their mass be increased by 50 per cent for accuracy.

This necessity for doctoring the results in using the theory of equivalent momenta appears also in works by others. To those of our readers who handle the integral calculus, we suggest the following test: Read the reference above of Tschappat on free recoil. Check all assumptions, perform the integrations, decide whether there ought to be any constants and what is their effect, and then learn that the value obtained by the equation so derived is incorrect, and you must substitute other values!

A study of the literature on recoil is so full of disappointments that it is more pleasant, perhaps, to get on with a substantiation of the above statements about recoil brakes and their method of operation. Our studies indicate that there are two basic classes of these brakes, which we will call passive and positive. These terms are relative, since, in practice, each type may possess some attributes of the

other. A passive brake would be one which reduces the recoil solely by relieving the pressure behind the bullet before it could have full effect. A positive brake would be one in which the energy ejected at the muzzle is forced to do work to counteract the forces causing recoil.

One of each type is shown in Figures 1 and 2. That in Figure 1 consists of a tube having a diameter slightly greater than the diameter of the bullet. It weighs less than $\frac{1}{2}$ ounce when made of aluminum alloy, and is screwed on the muzzle of the gun. Slots are cut in the tube to allow escape of the powder products before emergence of the bullet from the tube end.

The tube shown is about $\frac{7}{8}$ " long, and its wall thickness is .0925". Its outside diameter is .50". In cutting the slots every precaution was taken to insure that the angles of their sides were cut in such a way that the reaction from any gases striking them would not cause a reduction in recoil. With this the effect is, we believe, due to relief of pressure. The device shown reduces recoil about 35 per cent when mounted on a U. S. Enfield rifle, Model 1917, and using a .30-'06 U. S. Service cartridge.

Figure II shows a positive type of brake of simple construction. This is also screwed to the muzzle. The gases emerging from the muzzle act against a shoulder in the interior of the device, and are deflected to the rear through the ports shown. The reaction from these gases against the shoulder sets up a force of counter recoil. This form of brake has both positive and passive action. At the same time that the reaction is taking place, by a prolongation of the nose of the device the projectile remains within the brake until the pressure behind it has been somewhat relieved.

The major effect is in this case due to the deflection of the gases to the rear. The device shown has an efficiency of about 40 per cent in eliminating recoil when mounted on a U. S. Enfield rifle, Model 1917, and using a .30-'06 U. S. Service cartridge. The device weighs less than $1\frac{1}{2}$ ounces when made of aluminum alloy.

It will be noted that in speaking of efficiencies, the conditions of use must be stated. This is because the efficiency is a function of muzzle pressure and of the energy ejected at the muzzle, which latter becomes the energy available to cause movement in counter recoil.

In the process of study of the action of these brakes, it at once becomes desirable to know when the device becomes operative, since it would obviously be possible to have a brake that would give a reduction in total recoil but would yet be useless because it operated only after the rifle had already delivered the major part of its blow.

The standard type of ballistic pendulum seemed too heavy

(Continued on page 35)

Fig. 1

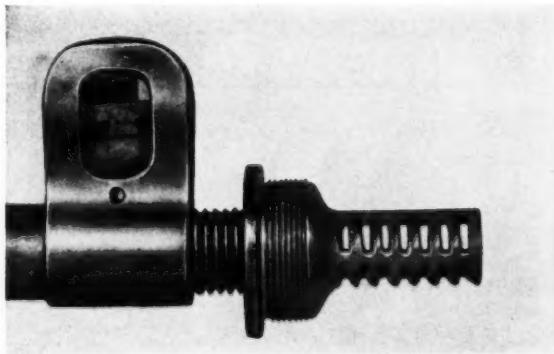
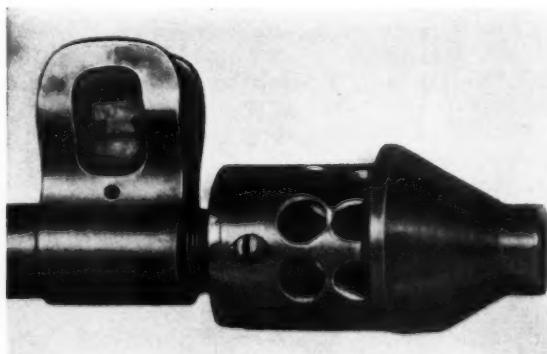


Fig. 2



HOW GUNS ARE MADE

By A. P. CURTIS

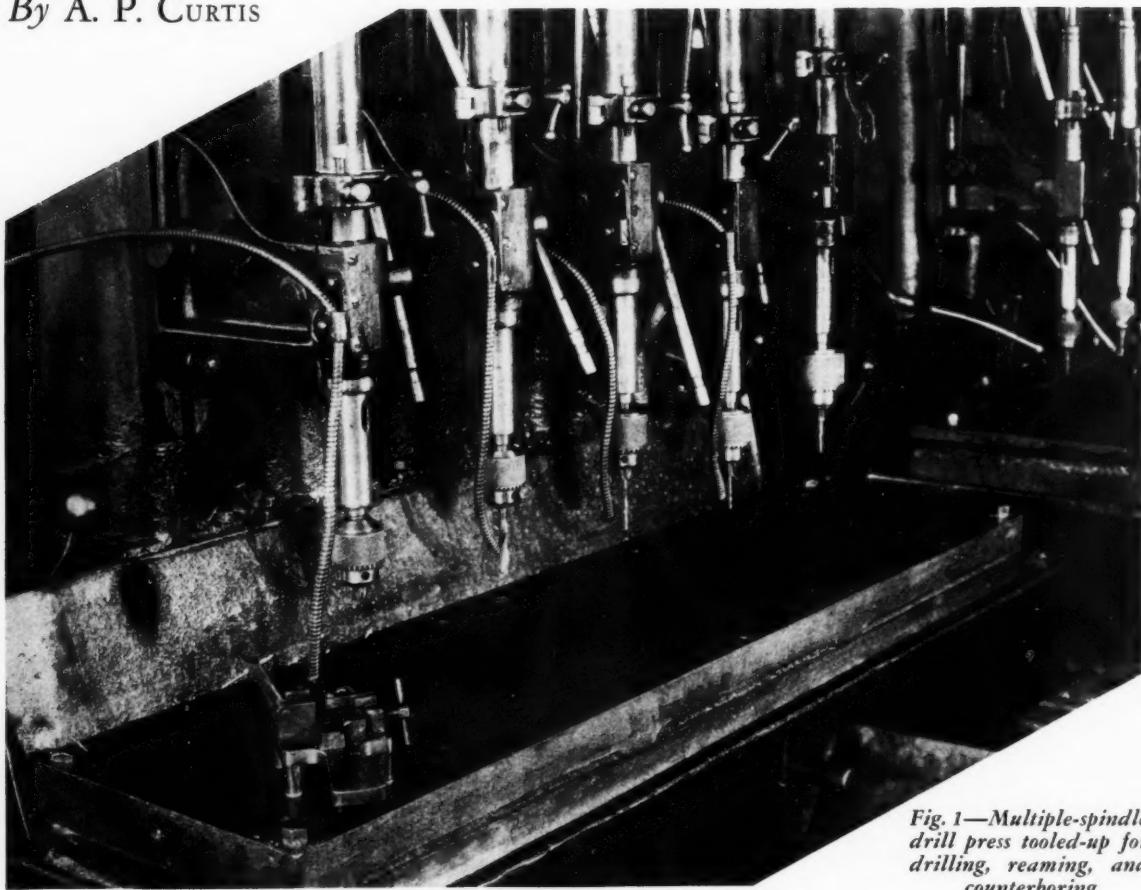


Fig. 1—Multiple-spindle
drill press tooled-up for
drilling, reaming, and
counterboring

ALL SMALL FIREARMS UNITS that are to have holes in them are "nested" and clamped in a holding fixture known as a drill jig, using the base-cut on the larger unit for locating the part, and a hardened steel bushing to guide the drill and insure the hole being in the correct location. If the hole is to be later reamed or tapped (threaded), the drill bushing is installed in a hinged "clapper" or "gate," so that after the hole has been drilled the "gate" and its bushing can be turned out of the path of the reamer or tapping head installed in another spindle, the operator sliding the jig (containing the drilled part) along the drill-press table until the drilled hole is below the spindle that is tooled-up for the next operation.

Figure 1 illustrates a multi-spindle drill press tooled-up for performing in rapid sequence the operations of drilling, reaming, and counterboring; and a drill jig with the gun part clamped in place, the hole drilled, and the gate opened ready for the next operation.

The performing, wherever possible, of several different operations in rapid sequence with the least possible handling and operating time is the modern way of making firearms parts. In the case of some parts, having more than two holes running parallel to each other, an adjustable multiple-spindle drill head is used, which drills several holes at one time with one setting. As many as 16 holes can be drilled at one time with this attachment, provided the holes are far enough apart to give drill-spindle clearance. All the

spindles can be set to drill clear through, or to any predetermined depth or depths.

With competition as keen as it is today, the manufacturer who does not avail himself of all time-saving equipment and methods soon ceases to be a competitor.

Blanking, Piercing, Forming, Indenting, etc.

Power or "punch" presses are invaluable in all metal-processing industries, including the fabrication of firearms parts or units. Figure 2 shows a close-up view of a small single-action power press with the safety guard removed so as to give a clear view of the working point, and a punch and die installed for a simple blanking operation. Note at the right the end of a table or trough for holding bars of steel, with one bar set over the die directly under a stripping plate that strips the bar from the punch upon the return or "up" stroke of the latter.

The end of the "punch" (carried in the "ram") is of the same contour as the part it is to punch or "blank" out. In the "die" is a hole of similar shape, and in operation the punch, on its down stroke, cuts, and forces through the die, a section of the steel bar of the same shape and size as the end of the punch. The blanked-out piece in this simple process drops through the hole in the die, into a "tote" box, which, when full, is moved to the machine which is to perform the next operation.

Punches and dies used progressively produced the parts shown at 3, 4, and 5 in Figure 3. In these comparatively simple pierced-and-blanked parts, the hole is first punched in the bar of steel, and the bar then automatically located over the blanking die, so that when the part is blanked-out by the next stroke of the ram, the small hole will be in the correct location. Part 2 in Figure 3 was blanked-out first, and the hole drilled later in a drill press.

Power presses are of several types: single, compound (double-stroke), inclinable, coining, etc., the use of the different types depending upon whether the parts to be produced are simple pierced-and-blanked units, or are to be blanked, cupped, formed, indented, etc.

Part 1 in Figure 3 is a good example of a multiple-operation job. It is a rifle buttplate made complete at one stroke of a power press. In this case a progressive sub-press was installed in a heavy-duty power press. The operating sequence was as follows: First, the two holes for the buttplate screws were punched. Then the strip of sheet steel was manually moved in the same press until two spring-operated guide pins snapped into these holes. The next stroke of the ram (which carried also a blanking punch) cut out the buttplate, and at the same time punched the two screw-holes for the next buttplate. The blanking punch is in this case also a concaved forming tool, and pinches the buttplate "blank" between it and a convex forming block, thus completing the shaping of the buttplate, as well as indenting the screw-holes for the counter-

sunk screw-heads. After the punch has returned to its upper position, the completely finished buttplate is ejected from the die into a tote box, ready to be moved to finished-part stores. One operator and one machine can produce from 550 to 600 pieces per hour with this modern piercing, blanking, and forming sub-press.

It is because of such operations as the above, in which a completed part is produced with a minimum of handling and processing, that you are able to buy a single-shot bolt-action .22-caliber rifle for around \$6.00. Incidentally, there are from 1100 to 1200 machine and bench operations on an over-and-under type of shotgun, approximately 8% of which are performed on either drill presses or power presses.

All this should give the layman an idea as to the many jaws, drill jigs, blanking and forming die sets, cutters, gauges, etc., that are necessary to produce a firearm with interchangeable parts, and should at the same time make clear why a manufacturer cannot change over his present gun, or produce a new model, just to please some whimsical brother. No manufacturer can afford to tool-up for a slight change, or for a complete new arm, unless the sale of a large quantity is assured.

NOTE: This article must not be reprinted without permission of the Author. This is Part 2 of this series. The third installment will cover the part that Profiling or "Edging" Machines, and Spline-Milling Machines, play in the making of your pet firearm.—Editor.

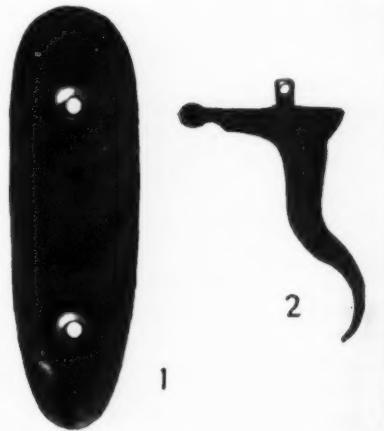
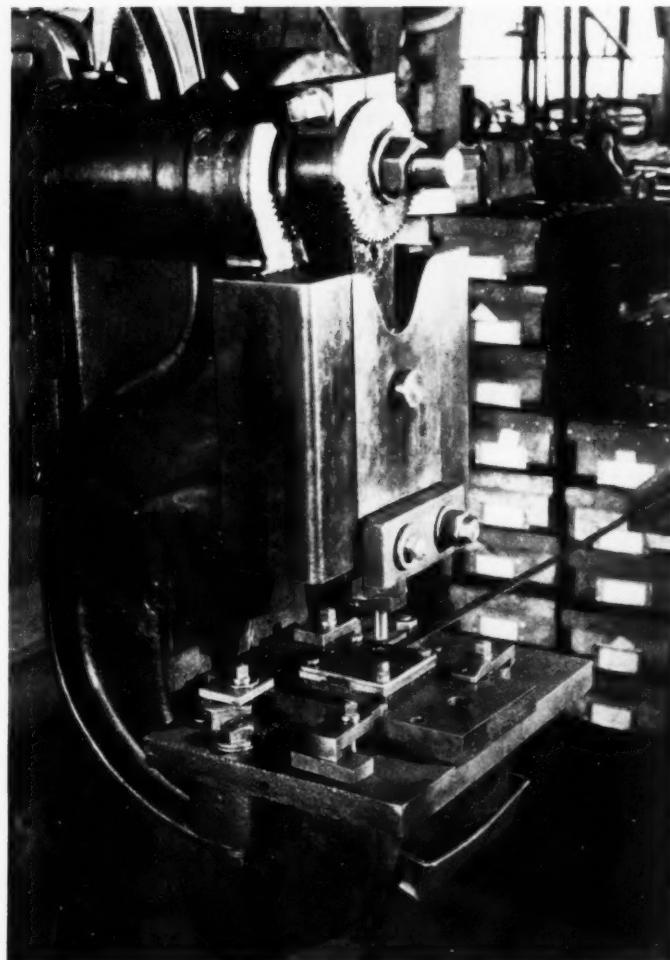
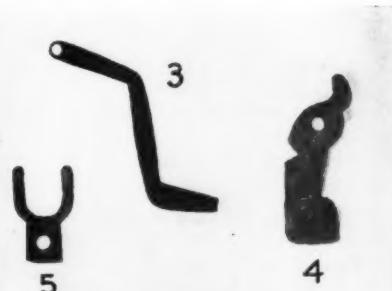


Fig. 2 (Left)—Single-action power press

Fig. 3 (Above and below)—Various small gun parts produced by power presses



THE SPECKSIONEER

By "JUSTASHOOTER"

MY NOTE-BOOK contains a number of entries respecting shooters' errors, which are, in my opinion, responsible for many of the low scores made in rifle matches, and also for part of the damage suffered by shooter's tempers and equipment. My note-book has been read by several of my shooting friends. Some said they were benefited; others claimed they were amused. I have, therefore, excerpted a few passages from my notes and submit them with the hope that they will contribute to the diversion of some and to the instruction of others.

Everyone must agree that a man lowers his score every time he shoots at a target not his own; that shooting at the wrong target is a dopey trick; that one who does it is mentally sick and that the clairvoyants in the scoring-tent should be allowed to skin him alive. The best way for a man to overcome this filthy point-losing habit is to think of his target number before starting to shoot a string, and to look at the number of his target before firing each shot. I have been roundly cursed for shooting at other people's targets.

Some shooters are unable at times to count from one to ten and, therefore, fire too many or not enough bullets at their targets. Sometimes they do not wake up until their errors of commission or omission are indicated by their low scores posted on the bulletin-board. The use of a loading-block is helpful, especially when the cartridges to be fired are counted and inserted in the block in such a way that the number of holes in the target plus the unfired cartridges in the block equal the total shots to be fired (after allowing for foulers). Last summer at Camp Ritchie I was penalized several points for incorrect distribution of the shots I fired at some of my targets.

Men were not made to crawl over the ground on their bellies. Despite this fact many riflemen delight in seizing themselves with serpentine convulsions before spotting their shots through their telescopes. I have watched more than one man set up his scope, lie down quite far away from it, fire a shot, strain every muscle in his body to wriggle up to his scope's eyepiece, painfully twist his tortured neck to view his devilish handiwork, writhe back into position, and then repeat the entire worm-like performance throughout a string. It is not difficult to lie down close to a scope, fire a shot, tilt the head to one side and look through the glass without spasming around on the stomach. There is no reason why men should not enjoy the flexibility of their necks. Those who insist upon imitating an adder seldom fire two shots from the same position, thus forcing their rifles to shoot in a different place every time they are fired. Sometimes I forget all that I have just written and set my scope so far away from my left elbow that I have to wriggle up to it in order to spot my shots.

Up to this writing I have no record of anyone who has successfully surprised a rifle by pulling its trigger at the moment its sights were correctly aligned; yet thousands of riflemen are still snatching at the bullseye as it goes by. One of them may some day be successful, but many great minds have assured us that squeezing the trigger when the sights are properly lined up is the only way to make good scores. Those who squeeze their triggers always view little holes in the ten ring when their happy eyes gaze through their spotting-scopes; while those who pull or jerk their

triggers become cock-eyed trying to spot bullet holes scattered about their targets. Trigger pullers are destined to remain in the limbo of low scorers until "hold 'em and squeeze 'em" seeps through the adamantine roofs of their consciousness. If a man refuses to use the proper trigger squeeze there is not much that can be done for him. Although I know that my rifle's trigger should be carefully squeezed, my fidgety index finger occasionally jerks shots into the nine-ring or eight-ring.

Continually tampering with a rifle's trigger pull is a pernicious pastime analogous to lapping a barrel with emery paper, yet there are many still living who persist in twisting the set screws in their rifle's speed locks, which is contrary to the advice of men whose knowledge is based on experience laboriously gathered over long periods of time. All should beware of those clumsy-fingered meddlers who run around with oilstones, files and screw-drivers offering to fix trigger-pulls. Most of them know not what they do. A trigger should be set so that it meets N. R. A. specifications and then left severely alone. Last summer I spent a week at Camp Ritchie and in all that time I did not see any of the winners tampering with their triggers. I have been shooting for several years and have just learned to let my trigger-pull adjusting-screw alone.

Splash lubrication works very well on certain kinds of machinery, but many rifle shooters have decided that it does not work properly when used in connection with rifle-bolts. Any scientifically minded shooter can perform an interesting little experiment which will verify the foregoing statement. Simply squirt oil into all the holes and fissures in your rifle's action and then shoot the old soak. If the bolt does not promptly spray your right eyeball with a fine stinging mist of your favorite liquid lubricant it is indeed a wonderful piece of machinery; or else you are left handed and will receive the blinding charge in your left eye. Very few people can make possible when their shooting eye is tearfully full of oil. I have watched more than one man pump oil over his rifle with long and graceful strokes, until the poor thing was twice as slippery as a wet eel, and then swab off all accessible lubricant and allow the rest to seep between the stock and barrel and into divers small nooks and notches until the poor piece was so saturated that it sweated oil whenever it found itself in a warm place. Perspiring hands and fingers are likely to find it difficult to hold a rifle firmly if its pistol-grip and trigger are perpetually smeared with the excess oil that dribbles down from the interior of its action. A few drops of good oil in the right places are all any respectable rifle wants. I know that what I have written in regard to oil is true because I have oiled my right eyeball a few times.

Some shooters, especially new ones, are uneasy unless they are taking their rifles apart or assembling them. I do not like to make a suggestion that may separate embryo gunsmiths from their happiness, but as it is a great truth that taking a rifle down and putting it together again does not do it any good I feel free to advise against so doing. But I must confess that I enjoy taking my own rifle apart occasionally.

I know one gentleman who lugged home a beautiful new rifle and immediately went to work on it with the family screw-driver. The mean old toot deliberately marred a

screw head, scratched the receiver, jumped upon the stock, where it scuffed up a few splinters and then leaped to its master's left hand, where the nasty little dirk inflicted a terrible flesh-wound. If you must take your rifle apart be sure to use screw-drivers that fit and if possible have someone superintend the job who knows what it is all about. It took a long time for the cut on my left hand to heal up.

After a man shoots factory sights for a while he usually gets around to buying an aperture front and a micrometer rear sight. Some mechanically inclined shooters lay their new rifles on rickety kitchen tables and proceed to pound out old sights and jam in new ones with the help of tack-hammers, door-keys or other precision instruments borrowed from the cute little toy tool-kits given to children by Santa Claus. Dents in the barrel near the muzzle, deep scratches on the surface of the receiver, ruined new sights or a split stock may result from experiments performed before the change is botchily completed. Driving out factory sights and installing better ones is a simple job, but the many mutilated rifles I have seen prompt me to suggest having the work done by a gunsmith or someone else who has a reputation for doing a neat job on his own rifle. Beware of those who are always ready to use their hammers and their cold-chisels to change the sights on your rifle. The stock of my rifle is badly gouged up and its barrel is covered with scratches in the vicinity of both the front sight and the rear sight.

When rear sights are out of order they often make fools of their owners before their perfidious actions are discovered. They move too far when changes are made. They do not move far enough or they do not move at all when their little knobs are twisted. The disc sometimes works loose

and dances merrily about while a string is being shot into a wide group. All this whips the victim into an ugly state of mind. Sometimes the elevation set-screw is not tightened, or works loose. The poor rifle cannot talk so its owner throws a good many wide shots down the line before he wakes up. Some rear-sights are equipped with set-screws which work loose in the middle of a string. This causes a man to foam at the mouth and bite his lips. After making a change in elevation I often forget to tighten the set-screw on the elevation slide of my rear sight.

At a recent local tournament I made a snooping nuisance of myself by picking up rifles and peering into the tunnels of aperture front-sights (from the rear of course) to find out for posterity what size peek-hole was the most popular. My research work brought out the fact that, in my neighborhood, the two largest inserts furnished with a standard set are used more often than the smaller ones. The use of the little pinhole inserts seemed to be restricted to a few recruits, so I struck up a conversation with the owner of a new rifle. He seriously informed me that the little squint-hole in his front sight exactly encircled the black sighting-bull on both the fifty and hundred-yard targets, thus eliminating the confusing ring of white which troubled him when he used inserts having large apertures. A careful check of the score-board indicated that what is viewed through a tiny front aperture may be misleading, as the name of the young man with whom I was talking was near the bottom of all lists of contestants. Upon my politely calling his attention to his scores, many alibis cascaded from his lips. As the alibis were not virgins I hunted up an ancient and successful sharpshooter who was consistently landing among or near the men whose names were written

M. A. Cooper, of Rome, Ga., testing a rifle at the bench



down as winners of medals or cash prizes. I asked him which size aperture was best. My new and owl-faced source of information replied "A large aperture is best, because it is easier to look through a large hole than it is to squint through a small one—now please stop asking fool questions and run along." The majestic simplicity of the old buck's answer hit me so hard that I stumbled to the shady side of the range-house and ruminated the gin-clear fact for half an hour or more with two riflemen who were reclining there. It was gravely decided that tiny-hole eye inserts are not suitable for shooting at regulation fifty and hundred-yard targets; that beginners would nevertheless probably use them for that purpose so long as sight-makers continued to put the little eye-strainers in cute little round tin boxes; that more points are lost through small apertures than through big ones, and that most men use the smallest size aperture when they first take up shooting and usually end up using one of the two largest sizes that come with a set. One of us thought that young eyes might be strong enough to use inserts having small holes. Before closing this paragraph concerning apertures I want to remind everyone to keep the large aperture used for fifty-meter shooting under constant surveillance, as my note-book contains several entries as to shooters who lost theirs and did not miss the elusive little hoops until they were called to the firing line to shoot in a fifty-meter match. I am listed as one of them.

In some rifle clubs are members who are always present at meetings but seldom or never on the firing line. They delight in practicing parliamentary law at rifle club meetings but they would sooner slip a hangman's noose around their necks than slip into a sling. They use their fellow club members as an audience for their oratory. They delight in argument. Their knowledge of the law gives lawyers the giggles and laymen frightful pains in their necks. Although the business to be done at the average club meeting can usually be completed in an hour or less than an hour, the spawn of sea-lawyers often inflate small matters and try to convince all present that two hours or more should be frittered away idly gassing about some small task which could be manually completed in ten minutes. Who has not stifled in a smoke-filled room while the local Cicero or Demosthenes practiced public speaking on the helpless club members who were too tired or too polite to protest? Perhaps we should not object to the talk-a-whiles using us as sighting bulls, for who knows but what their practice in parliamentary procedure may result in their election to the United States Senate? Once in that august body they may remember us and get us nice government jobs; or they might manage to have our allotment of ammunition increased to ten times what it is now.

I have heard and read about shooters who have driven hundreds of miles to matches, only to learn after being called to shoot that they forgot to bring along their rifles. Some shooters lie down, set up and adjust their spotting scopes, and upon receiving the order to commence firing, remember that they left their rifle's bolt on the cellar work bench, or that they dropped their ammunition on the parlor mantelpiece. The cloak of prophecy often turns out to be a galling hair shirt, but I am going to don it long enough to forecast lower than average scores for most of those who leave part of their equipment home and then borrow or do without whatever they forgot. My wife says that I would forget my head if it were not firmly fixed to my skinny old neck.

If a spotting scope is not focused on the target at which its user is shooting, but on an adjoining one, strange and ludicrous things may happen. As I have never heard of a name for the careless souls who, before firing, fail to make sure that their spotting scopes are focused on the

targets at which they are to shoot, I shall call them cross-spotters so that they will no longer be nameless. When a cross-spotter fixes his scope on the target of a good shot, and starts firing at his own target, his spirits mount to the sky as his first shots are fired, because he naturally believes the first few tens and X's on his neighbor's target are his own. If a cross-spotter and his neighbor both let their shots off at about the same time, the former may not wake up until the scores are posted, and then only after a struggle with the hard-working gentlemen in the scoring tent. But if one shoots faster or slower than the other, the cross-spotter may regain consciousness after comparing the number of holes in the target with the number of bullets left in his cartridge block. Cross-spotters who wake up and switch their scopes to their own targets usually find neat little groups of bullet holes in odd places, or they may find nothing at all. A gentleman who was looking at my target and shooting at his own, accused me of shooting at his target because I shot on mine while he stopped shooting to make a correction for one of my sighting shots which he thought was his. As I had often done the same thing I carefully stroked his wounded feelings and suggested that he focus his scope on his target instead of mine. We became great friends, and always enjoy talking of the way we met.

My writing has thus far described only the simplest forms of cross-firing and spotting. There is a more complicated crime which is a combination of both and which requires the incorrect use of a rifle scope and of a spotting scope for its successful perpetration. When a rifle scope is so far out of lateral adjustment that it causes its user to shoot on the target adjoining the one at which he is aiming, and when his spotting scope is focused in error on the target through which his shots are going, we have a member for both the Cross-Fire and Cross-Spotting clubs—as well as for the Red House. I hold memberships in both clubs.

Buck fever takes a toll of thousands of points annually, and nothing is done to stop its ravages. Long practice sessions and few or no matches aggravate the dread malady. Some shooters take their match shooting too seriously, which is sure to bring on weakening firing-line sweats. If you feel an attack of involuntary muscular twitching coming on, remember that you are shooting to have a good time and that a rifle match is not a matter of life or death. Then have a good laugh at yourself, and do the best you can. Shooting in many matches is an excellent tonic that builds up resistance which wards off shooter's ague. I often get buck-feverish.

A CORRECTION

Editor, AMERICAN RIFLEMAN

Dear Sir:

May I call your attention to an error in the table Figure 2 in my article "Bullets in Flight," published in your December issue. The plus sign in the column headed "Application of Formula" should be a division sign. It might be well to call attention to this error so that the table agrees with the text of the article.

Thanking you for your attention to this matter,

Yours very truly,
BERT POPOWSKI.

NOTICE TO RIFLE CLUBS

Report of record of firing during 1938 may be under either the old or the new courses, as contained in the latest Basic Field Manual. The firing for record during 1939 must be under the new courses.

DIRECTOR OF CIVILIAN MARKSMANSHIP.

THE MODERN RANGE

By WALTER F. ROPER

AT ANYTHING BEYOND 100 yards some method of communication between the firing line and targets is necessary on any shooting range, and during a real "shoot" communication between the chief range officer and the different ranges is a most desirable proposition. Personally I'd be inclined to reduce that 100 yards to 50, because even those sure-fire scopes that "pick 'em out of the black at 100" don't always live up to their reputations, with me!

Anyway, beyond 100, depending upon a scope isn't at all satisfactory, and some means of asking the pit boy "Just where in H— did that last shot on target four go?" is pretty necessary. Spotters and scoring discs may work O. K. most of the time, but what about that "swabbo" that you want checked up? Even if you know darn well you pulled the shot clear off the target, it's a sop to your feelings to be able to tell the target tender to wake up and use his eyes!

Of course, if our ranges could all have a detachment of Marines with their neat little portable telephones, such as they used to use on the upper pistol range at Perry, everything would be grand, but for some reason the N. R. A. hasn't yet seen fit to get an issue of Marines along with rifles, ammo, targets, and other supplies from Uncle Sammy. Furthermore, if you want just about the d—dest job connected with rifle-range operation, get yourself elected communications manager of your club, and try to keep a telephone line working even 50% of the time. Don't argue with me about it—not any: I've held that job and I speak from experience.

Now, I'm not going to try to persuade any of you shooters to take up an even more nutty hobby than shooting—if the latter really deserves the title of hobby as some of my shooter friends claim, but I am going to make you so jealous that you'll appoint someone at your next meeting

to either get himself an Amateur Radio Operator's license so your range can be really up to date, or, better still, round up a couple of Radio Amateurs and get them to do the job for you. For, in case you don't happen to know about it, the more-or-less new ultra-high-frequency radio channel known as the "Five Meter Band" is the answer to one of the rifle club's most difficult problems: that of dependable communication between firing line and target pits.

Maybe one of your club members already holds an Amateur License—although if so, the chances are that he keeps mighty quiet about it, just as those of us who like a round of golf occasionally used to do some years back, for shooters haven't always been too tolerant of other hobbies. But even if you can't find one of these strange birds in your membership, all you need to do is to put the proposition up to an Amateur Radio Operator of your neighborhood. He'll give you service that will surprise you, for nothing pleases the Radio Amateur more than to be given a chance to show the practical value of his gadgets. There is no use in getting interested, however, unless you either have a member who holds a license, or can find an amateur in your town, for it is unlawful to operate even the little short-range five meter transmitter without a "ticket."

When you've found the man, therefore, tell him you want to have him use Five Meter Transceivers to give communication between your firing line and the target pits. He may show some slight signs of scorn when you tell him that your maximum range is a thousand yards, for the little portable rig he'll produce, or buy, will give 100% results up to ten miles, with ease. But I'll bet he will go at the job in a way that will surprise you, just the same.

If you want to get going with the least possible delay, get your members to chip in and buy a couple of the com-

(Continued on page 36)

The complete outfit is small and compact, and convenient to use indoors or out. Good for any distance up to twenty miles, and as reliable as a telephone.



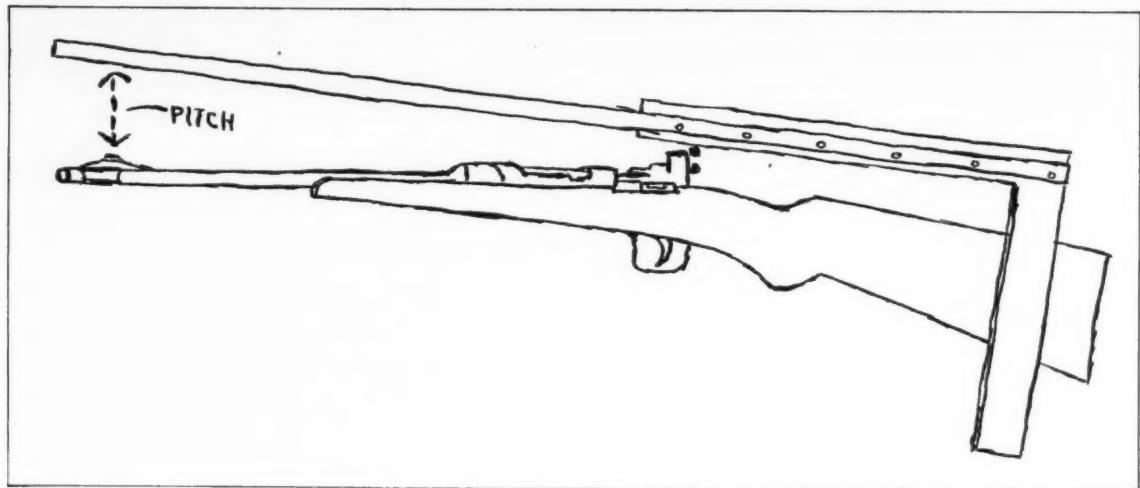


Fig. 1

HOME GUNSMITHING

By "PROFESSIONAL"

LAST MONTH we had a few things to say about tools, and then began with the work of remodeling a 1917 Enfield into a sporter. This month we'll continue with this work. For many of us the nights are getting cold, and the old workshop has a lure all its own. So let me sharpen up the pencil, and look over my notes a bit. The North wind is howling outside, but it is nice and cozy here in the shop. . . . And now to work again.

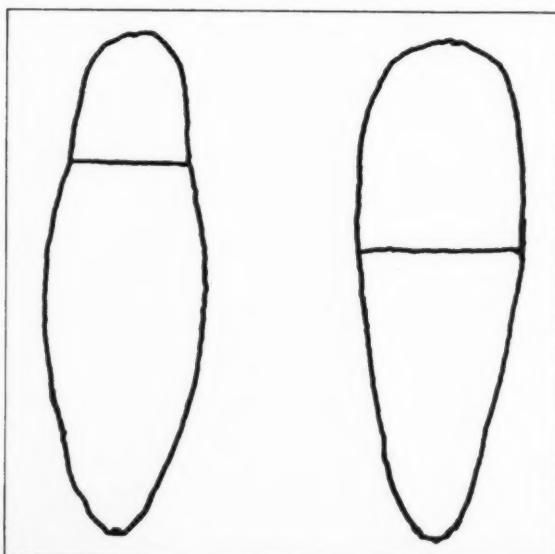
After the glue for both buttstock and fore-end tip has properly set, we can extend the barrel channel through the tip. It will be better to do this before attacking the buttstock, as the proper hang of the butt is more easily obtained with the action and barrel properly in place. In cutting the barrel channel through this tip, work from the front end

toward the wood of the fore-end, using gouges and half-round chisels at first (which you will have to resharpen often), and then files of the round and half-round variety. This tip should not bear against the barrel, but should clear it all around enough so that you can pass a thin sheet of paper between the tip and the barrel. In getting the high spots out of the barrel channel, coat the barrel at this point with lampblack and oil, using a thin coating, and the high spots will be marked with this. Small scrapers made from the ground flat stock obtained from Starrett or Brown & Sharpe are very useful in removing these high spots. These scrapers should be rounded on the ends to the shape of the barrel channel, and should be smaller than the channel. The edges of the scrapers are filed up square, and after the scraper is hardened and tempered to a dark straw color, hone the edges with a small hand stone until they are very sharp. The scrapers are used in a vertical position.

We can now turn to the buttstock, and leave the outer shaping of the forearm tip until we finish up the outside of the forearm.

Measure off the stock length suitable to yourself, from the center of the trigger to the center of the end of the butt, and make a pencil mark at this point. Now take the two-foot carpenter's square, and clamp along the inner edge of the long arm of the square a piece of light wood with a straight edge, long enough so that it extends 22" or 24" beyond the end of the square blade. Place the square on the stock so that the short blade crosses the butt at the point you marked for length, and the inner edge of the long blade touches the top of the rear sight with the action bolted tightly in the stock. Adjust the square so that the inner edge of the wooden strip clamped to it clears the top of the front sight by the amount you wish to pitch the barrel down. Commonly this is about 2" but may vary to suit the individual. Then draw a line across the butt through the point marked for length, using the short blade of the square as a guide, which will give you the angle to saw the butt to in order to give the desired pitch to the rifle. (See Figure 1.)

Fig. 2



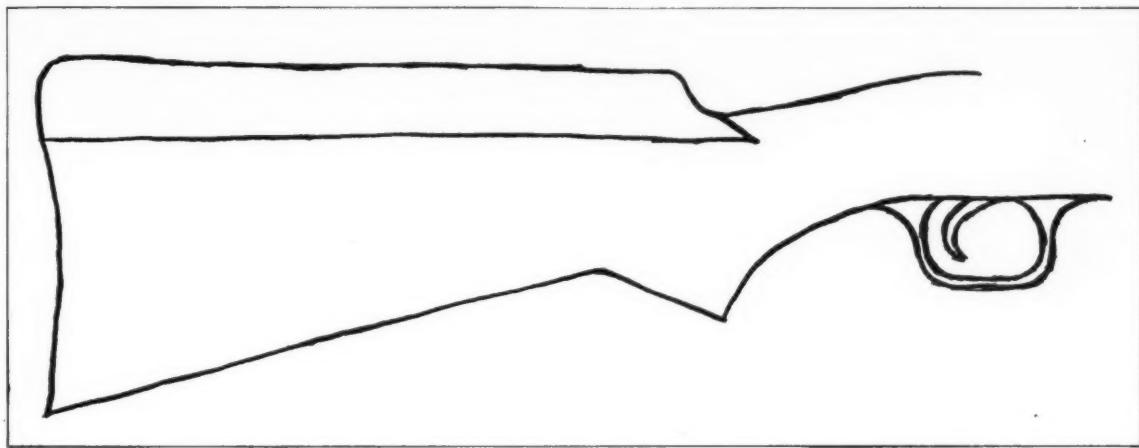


Fig. 3

The .22 Springfield buttplate is the easiest to fit as it has a flat back, and if it is too heavy the same plate may be obtained from private makers cast in aluminum. If this plate is used, a straight saw-cut across the butt following the pencilled line will fit the plate, with a little spotting-in with lamp black and oil on the plate. If the saw-cut is not quite true, the butt will have to be straightened up with a file.

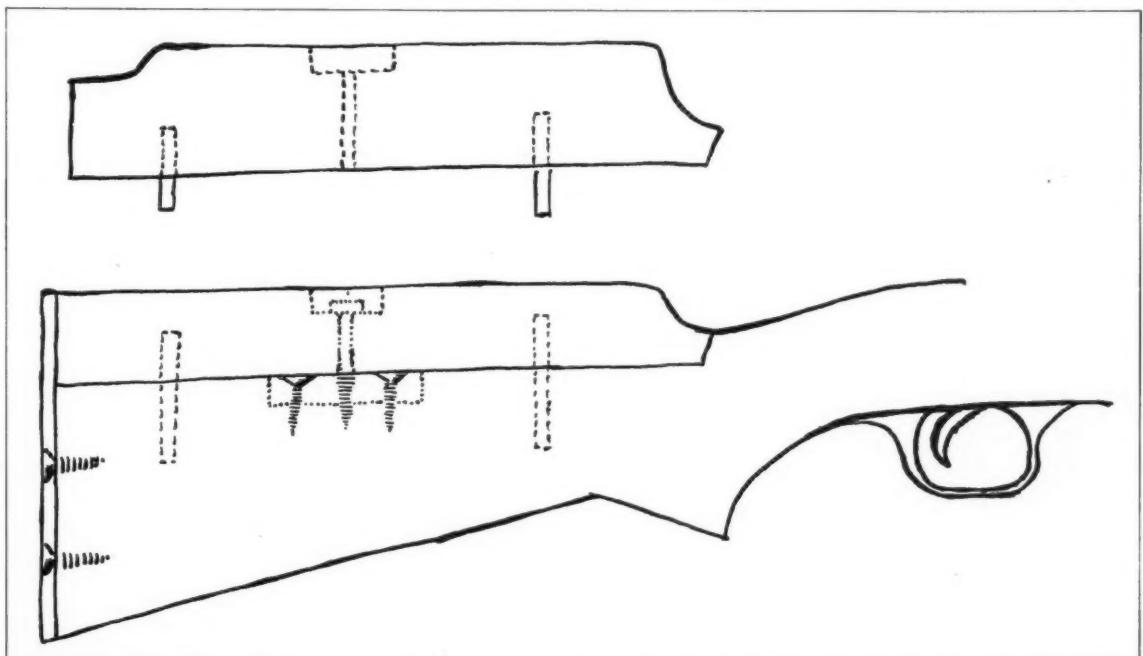
If you desire to use the military buttplate that came on the rifle, straighten out the toe of it, which may be done cold in the vise with two flat pieces of smooth steel; and if you do not like the top extension on the plate, cut this off, leaving it either flat on the back of the plate or with a small piece of the extension projecting, to be filed up to a shape like that on the Winchester Model 70 buttplate. Another screw hole must be drilled and countersunk above the trap, and the screw that was used in the extension of the buttplate may be used here. If you do not like this Enfield buttplate, the Winchester Model 70 plate is an excellent one, and is not expensive to buy.

Use the carpenter's square with the wooden extension on it to measure your heel drop from the line of sight, so that you will know where to locate the top of your buttplate; and if the Enfield plate is to be used you can use this to mark off the cut on the side of the buttstock, and get at least part of the curve to fit the plate. The buttplate—of whatever pattern—must be spotted-in on the end of the stock, using lamp black and oil, and the high spots cut down with chisels, files, scrapers, and sandpaper or emery cloth. Cut the center of the end of the stock a trifle lower than the edges where the plate bears, so that you get a good tight fit along the edges. This is best done with a scraper or sandpaper.

After drawing upon the side of the buttstock the shape of the pistol grip, place the square along the bottom of the stock so that the edge of the square is on a line with the bottom of the stock under the action at a point just behind the trigger, while the other end of the square blade is in line with the toe of the buttplate, and draw a line on the side of the buttstock along the edge of the square, from

(Continued on page 35)

Fig. 4





THE BIG SMOKIES

By F. C. NESS

BACK IN THE Great Smoky Mountains of North Carolina, we city softies puffed on the climb, grateful for any breath-catching pause; but we stayed ever on the heels of Wint or Meridee, our pace-setting guides, lest we miss some wise observation from the low-speaking lips of these two mountain sages. Wint Crus wore hard yellow duck, carried a .32-20 Winchester, and was the middle-aged timber cruiser who led our hog hunt near the Tennessee line. Merideth Cairn wore blue denim, toted a "thutty-thutty" carbine, and was the middle-aged native who guided us through the Pisgah Forest not far from the South Carolina border. Both men wore leather-soled shoes, and depended upon the sharp edges of heel and sole to keep them from slipping.

Wint shot a gray squirrel through the "haid" with his carbine, which he later learned was zeroed two inches right at that range! Meridee plugged the neck of a young buck with his Winchester. He wouldn't waste a cartridge on any lesser mark. Wint did not withhold his approval when we punctually kept an appointment in a distant fog-obscured gap. He seemed pleased also when we called a turkey hen up to within fifteen feet.

Both guides worked indefatigably, rain or dry, but without luck. Wint was concerned principally with the safety of his "babes-in-the-wood," while Meridee worried about our bag and its continued emptiness. Persistent rain blotted out two days and nights. Our crowded itinerary, covering 2500 miles, and the long jumps imposed by the expansive area of the Big Smokies, consumed several other days, which left little time for finding and combing game pockets. The Wilderness Hunt in the Southern Shooting Circle and its WBT broadcast consumed two days of our curtailed schedule. We found plenty of sign, but did not catch up with our quarry until our allotted time was all but spent and we had to head homeward.

Rifle and Scope Test

We had an even half-dozen shoulder arms, including a peep-sighted 16-gauge shotgun with rifled-slug loads for

Russian boar, and a .357 S. & W. Magnum doe rifle. That is, the revolver load used in a rifle, was to be tried on a doe, were a buck unavailable. We did see a doe standing at 60 yards, but had a M-70 .30-'06 in our hands at the time. The 4X Lovec successfully came through an all-day rain, but its leather lens cap became soaked. Our Noske on the .250 Savage M-54 became fairly water-logged, and the scope had to be replaced with the receiver sight. The Lyman Alaskan on Jim's .300 Magnum M-70 became a mite damp inside, but was easily wiped out in camp. Our Unertl, Belding & Mull, and two Weaver scopes were carried on less wet days, and their inner lenses remained unfogged. The Skardon Smith mount on our .270 Winchester did not give any trouble in the dense mountain laurel. Two members who jumped deer in the brush found the Weaver and the Alaskan too slow for aim. We conclusively proved that the hunting scope, on a bolt-action sporter, was amply fast for effective aim on small flying targets.

All our shooting came as a consolation, at the cabin, on the way in and out. We busted rocks at two hundred yards sitting, 100 yards standing, and at 300 yards from table rest. We blew up flying cans of water in the air with our B. & M. scope-sighted Mauser sporter (.30-'06), and blasted peeled potatoes tossed by ourselves, which gave greater satisfaction than way, feeding our vanity instead of our stomach.

Clothing, rifles, and equipment were examined with interest, and with some envy upon occasion. For example, Jim Beloungy, Columbia's radio engineer and our great-hearted host, volunteer cook, and heavy man of the party, had a home-fashioned fixed mount for his Alaskan scope. Like the new "Install-It-Yourself" Stith mount, it utilized the factory screw holes in the hood and left-side of the bridge of the M-70 Winchester. The connecting strip between the scope rings contacted the left side of the receiver for additional support, without requiring any drilling or



tapping of the rifle. It was low and neat and, made of Dural, was strong and light. It was worked out by Jim, with the assistance of Jack Moffat, Charlotte gunsmith and member of our party. Jack is also a fine rifle shot and an expert stocker. Each custom sporter we saw on the trip was invariably an example of his attractive wood finish, close fitting, and clean checkering. Fine accuracy and constant zero of these jobs proved the perfect bedding of which he is capable. It was very apparent that Jack liked fine rifles and wanted them perfect in every respect. He, and quiet, unobtrusive Plax, who came with him, were the only ones in our party without scope sights. Both carried fine peep-sighted Springfields.

Clothing and Shoes

Jim, Jack, and Plax wore comfortable Woolrich woolens and rubber shoes. Bill Shadel of the N. R. A. Staff, and the writer, wore corduroy and Duxbak woolen breeches, Bean and Buckskein shirts, and leather shoes with hobnails. Our own preference is for six-inch shoes of well-greased leather, with rubber heels and six calks or hobnails in each sole—à la Horace Kephart. All of us had reason to appreciate our two-piece woolen underwear. We did not need gloves or ear flaps down there.

Cunningham Neatsfoot oil, poured between the sole and upper, and Snow-proof grease, rubbed on top, keep leather shoes reasonably waterproof. Rubber shoes do not support the foot, they slip on wet rocks, logs, and leaves, they do not allow evaporation of perspiration, and they hold all the moisture which enters, via the legs and socks, from rain or wet bushes. Rubber shoes are at their best in wet snow, and then they are an abomination on leaves or grass unless ice creepers are worn over their slippery soles. Moccasin boots with "no-slip" composition soles are as slippery as rubbers. With leather soles they skid more readily than shoes, and require hobnails or calks or edging nails. They

do not retain moisture as do rubber shoes, but they support the feet but little better than rubbers. Army shoes or low leather boots built on similar lasts are better for the feet and for gripping uneven ground. In any case, at least two pairs of woolen socks must be accommodated, and three are better unless an inner sole is used. Much walking calls for thick soles and light-weight shoes. Leather slippers, low moccasins, or rubbers, are fine in camp. Frequent changing of woolen socks is advisable.

On our hog hunt, out of Robbinsville, we could get no nearer camp by car than 9 miles, and that was 4000 feet up. We elected a 22-mile flat-car ride over the rails of a logging road. At the end of the line we had a mile or more of steep





The original hunting lodge on Hooper's Bald, and our camp on the bog hunt

grade over wet logs to reach the mountain side. At that time Bill Shadel and yours truly realized in full the value of our hobnails, especially the ones under the arch just forward of the heel. Then, and on the return in the rain over the same trestle, those hobnails seemed more important than our rifles. Brandon Smith and Willie Ackerman wore ice creepers over their moccasins, and were as well equipped as we, but Jim, with his rubber shoes and excessive avoirdupois, gave us no little concern, with visions of a broken leg jammed between slippery ties. On this particular trip, for which Brandon was responsible, the latter carried an unzeroed .38-'40 Winchester, which grouped a foot low at 50 yards when we tried it later. Ackerman carried a fine Moffat-Springfield job, whose waving muzzle kept us apprehensive.

On Hooper's Bald

This camp was a rambling log house 4000 feet up the side of Hooper's Bald. When we followed Wint another thousand feet to the top of its treeless, grass-grown ridge, we saw the only bald spot of our entire trip through the densely wooded Smokies. We also peered into the great hundred-foot lodge house built at the turn of the 20th Century—the original headquarters for hunting the wild Russian Boar imported and released on the same spot about 1910. Descendants of these same swift beasts, still leaving their spoor on the same thicket-covered ridges, were our immediate objective. However, it rained continually, our own group was too small for an effective drive, and the local bear hunters were loath to risk their dogs on these tusked killers. On an earlier hunt Jack Moffat shot one after it had charged him and chased him around a huge hemlock tree.

As it turned out, we spent the entire night encouraging and nursing the open fire, drying our soaked garments, and eavesdropping on two visiting undertakers who could not get their minds off business, but volubly lamented the local fall in funerals, until the all-night coon hunters returned to camp and interrupted the ghastly gabble. We left at 5 a. m., and with little reluctance, hiking down the mountain in what proved to be an all-day rain. Our heavy wool-

ens saved us from colds or worse on the half-day dolly-ride which followed. Soaked to the skin, if not deeper, in a relentless rain, and with the temperature steadily falling, we rode in the open for hours, shivering until we became so miserable that it was actually fun. However, when the cold breeze and the pools in which we sat had chilled us through, the matter became too serious to be funny.

One Grand Scramble

Our recollection of what followed is an impression of a whirligig of dissociated incidents.—Wet clothes, removed with stiff fingers, tied in a bundle and jammed into Shadel's Buick, which hurtled through mountain passes at 70 miles an hour, and finally stopped at a typical Ranger Station in another forest for a hurried selection of necessities and a short pack into a wall-tent camp; meeting friends and colleagues of Jim's, and numerous officials of the U. S. Forest Service who were consistently cordial and cooperative; awakening suddenly at 1 a. m. to realize that the fiendish figure in red was merely the WBT program director in long underwear, determinedly poking the fire with an improvised trident; gulping breakfast at 5 a. m., and then crossing swift streams on frosty logs in the moonlight; seeing a rattled buck hunter bewilder a standing doe by firing three shots at her running fawn; meeting a nimrod who confidently carried a loaded Enfield sans firing pin; finding ourselves in the midst of the first hunting broadcast, and facing the microphone with ill-concealed fright; dumping our scrambled duds and duffle on the curbs of strange cities for quick sorting and repacking; picking up a passenger in Charlotte and driving pell-mell to Hendersonville—a hundred miles—for groceries to be eaten at our nearby cabin; getting up at 3:45 a. m. and ghoulishly faring forth with flashlights to get in line for the main Pisgah Hunt of the Northern Shooting Circle; curious and interested, but disappointed with the artificial aspects of the too-highly organized deer hunt, occasioned by being assigned a definite compartment and a patrolman, in addition to depending upon a guide and having him expect acceptance of his edicts.

Our hunting camp just below the rim of the U. S. Forest preserve



Big Smoky Impressions

We were surprised to find such "North-like" country so deep in the South. The principal evergreens were big hemlocks. There was less underbrush—excepting occasional laurel and rhododendron thickets—than in Pennsylvania's part of this same Appalachian chain. However, we could see for less than a hundred yards because of the effective screen imposed by the even coverage of tall mature trees here in North Carolina. Underfoot was a carpet of fallen leaves, with very few outcroppings of rock. These mountains reached the respectable altitude of 6600 feet, and over. At 4000 feet and higher we did not see the expected graveyard of chestnut stubs. The old trees apparently had weathered the general blight, and Jim found a burr containing a sound nut. Old trees fathered six-foot shoots which are said to be relatively immune to the blight. It was a most welcome sight, these grand old chestnuts still alive. We have heard that they are coming back in other quarters through the medium of new shoots sprouted by old roots. That would mean more food for all game. Valuable English boxwoods were common in the foothill clearings, and the meanest shack was surrounded by bushes worth several hundred dollars.

The Forest Service Hunt

The organized hunt on the Pisgah National Game Preserve involves about 4500 deer and 150 bear on 100,000 acres, of which only 62% is opened to those hunters who obtain a special permit (\$7.50 per copy, and good for three consecutive days on stipulated dates). In the Northern area six compartments were opened to 50 or more hunters per day; four to ten hunters, with one patrolman per compartment. Does, fawns, spikes, moolies, and button bucks may be legally taken, in addition to adult male deer or bear (Cinnamon and Black), but only one animal per three-day permit. More than 700 deer were killed on the fourth annual hunt conducted in 1937. This year only from 8 to 12 kills were checked daily while we were there. These included 3 black bears.

The Forest Rangers provide each hunter with a red collar to go with the required red cap, and recommend that

a belt ax, rope, twine, muslin sacks, and wiping cloths be carried in addition to rifle, ammunition, and hunting knife. Free bulletins on "How To Care For Wild Meat," from regional offices at Asheville, N. C., and Atlanta, Ga., are issued by the U. S. Forest Service upon request. We prefer the lighter hacksaw blade to the ax for severing the pelvic bone or cutting through the brisket. Because we do not fancy sheath knives, Bill Shadel and I carried folding pocket knives and a small pocket stone. Jim and Jack carried sheath knives in copper safety-sheaths made by the former.

Everyone carried a noon lunch; some a bottle of water, although cold streams of mountain purity were plentiful. Shooting began at seven o'clock (daylight), and regulations required hunters to be out of the woods and back on the road at 5 p. m. Flashlights proved to be useful individual equipment. Binoculars were unnecessary. Instead I carried a candid camera in the left pocket of my Bean shirt. For any considerable climb we pinned or tied the sleeves of our woolen jackets around us, and donned the jackets only after we reached the ridges. Still-hunting rather than driving was the vogue. Stands were taken at trail crossings, in gaps between the ridges, or at some high point which would afford a long-range view. I never found a spot where I could see well beyond 75 yards. Squirrels were plentiful but were not legal. I saw six greys at the same time from one stand. Handguns, small-game rifles, and any arm lighter than .25-35 or .25 Remington, were taboo.

Sportsmen who had no camps or homes immediately outside the preserve, boarded with farmers or lived in hotels at Hendersonville, 12 miles away, or Asheville, 8 miles farther from the checking station. Brevard (N. C.), another small town, is less than five miles from the Southern Station. We have only the highest praise for the courteous and efficient gentlemen of the U. S. Forest Service whom we contacted in their official capacity as hosts to our party and fellow hunters. They anticipated our every need and requirement, and conducted one of the safest deer and bear hunts it has been our privilege to witness. In fact, they handled green hunters much as we control tyro marksmen.

THERE IS A LIMIT

By ALLYN H. TEDMON

NOTE: Here is an article that contains much food for thought. While it does not necessarily represent our official opinion in all respects, it is nevertheless deserving of careful consideration by all who take a rifle afield for sport.—Editor

EVERYBODY HAS HEARD the old, old story of the ostrich that hid its head in the sand, but apparently few shooters of this country realize that they as a class are lined up side by side with the ostrich, their heads buried in the sands of ignorance—ignorance of actualities hovering on the horizon.

Recently I was shaken as from sleep when a gentleman, a member of our General Assembly, in discussing a proposed anti-gun bill, said: "I'd be for any bill that would do away with all guns, except possibly twenty-two rifles and shot-guns. There is no longer any use for these high-power rifles, and for one I'd like to see a bill that would do away with the whole caboodle. And what use there is for a pistol I don't know."

This man is a big ranchman. He is no sissy, and the above are not his exact words, though very nearly so. For years he has been trying to protect a little band of antelope that run on his stock range, he being a true conservationist at heart; and today he is completely disgusted with the class of city "sportsmen" who come out to his ranch in automobiles, and "shoot-up everything with high-power rifles." He is ready to do something drastic to stop such performances—and who can blame him? How many more men are there in our legislatures who feel the same way, and for the same reason?

Again, there is that matter that came up years ago in Wyoming while I still lived there. After several years of watching would-be hunters with high-power rifles flock-shoot elk, the ranchmen did their best to force a state ban on high-power rifles. They insisted that hunters should be compelled to use rifles like the .45-70 or .45-90. And why? Simply because these men who knew, were fed up on having half-baked hunters shooting-up the elk at impossible or unreasonable ranges, they later finding carcass after carcass rotting, where the wounded animals had fallen after being hit by the rain of "high-power" bullets. The attribute of sure hitting at long range is a good servant when used by the few men in the country who know, but it is a mighty bad master when attempted by the average gun owner who usually doesn't know a blamed thing but has read some wild 600-yard story by Whoses in the *Sportsman's Delight*.

I personally am opposed to all this long-range blooey. I think I know about as much of rifle shooting—theory and practice—as the average shooter, and I know that the English language doesn't carry words hot enough to be used on me should I attempt some of the shooting that is told of and extolled in so many of our "long-range" hunting stories. In my opinion, when one has to resort to shots at game at ranges over 300 yards on the average, then "hunting" as a sport has ceased to exist. Such shooting is not hunting, it is merely long-range rifle practice on dumb brutes that haven't a chance to defend themselves. Hunting is a game of matching wits, of outstalking the beasts of the field. I personally could get very little satisfaction from killing a deer with a 400-yard shot, and the animal in complete ignorance of my presence.

We have very much the same "high-power-rifle" complaint from farmers against hunters of prairie dogs, chucks,

and the like. Too much noise, too many big .30-caliber bullets whining over the hill, too much bad long-range shooting by ignorant and careless persons.

How much more of this kind of thing are these ranchmen and farmers going to put up with? They own the land you hunt over and they can keep you and me off it if they are so inclined. And why shouldn't they? If we can't treat them and their property with due consideration, why should they continue to put up with us? What do you think you would do under the circumstances? Has it ever occurred to you that perhaps it is possible to go too far with this high-power, high-velocity, long-range stuff? Did you ever happen to think that there is a limit to such "progress"? Of course we know that light, thin-jacketed bullets driven at velocities of over 3000 feet should break up upon hitting anything solid, and are really safer than solid bullets at the slower speeds. But, on the other hand, what if some sap-head who believes everything he reads about "long-range shooting" takes a shot at a chuck on the very top of a hill with one of these new .220 Swift rifles—to name but one—and he misses the chuck and the bullet slips on through the beautiful blue, to drill a hole in the village church bell? Well, you just have the job of explaining the matter to the congregation, every last conscientious soul of which is thereafter a sworn enemy of the "high-power rifle"!

Another thing: Just what do you go hunting for, anyway? Fifty years ago our fathers and grandfathers hunted for meat—grub. There was plenty of game and not so many humans. But that day of meat hunting has passed. For my part, I go hunting for the pleasure of getting away from the yapping humans, to get back into the hills and the big timber away from the stench and turmoil of the city. I don't go for meat or to "fill my license," but I do go to spend a few days among God's own creatures, and I have tried to bring up my sons the same way.

But there are a lot of fellows who class themselves as sportsmen, who curse and damn everything from the Constitution to the red sunset if they fail to "get the limit." They are not sportsmen; they just don't fit in or belong out in the fields and hills. They are much more at home at a night club, or half buried in the smokescreen of a third-rate prize fight. And they aren't all men, either.

A woman I know, by dint of hard driving managed to get back to the city in time to get her picture in the afternoon edition of the daily paper, together with a buck she claimed to have shot at daybreak on the opening day. The first buck of the season! And how many do you know who have done the same thing? Do such people go hunting for the pleasure and benefit of a week in the hills? They would die of homesickness if they were out of town that long. They go hunting for publicity, and if they fail to fill their license, woe betide the poor souls who must listen to them afterwards.

But what gets me more than anything else is the "sport" who shoots his own deer, and then sets out to shoot one for every other fellow in camp. I'm not so lily-white myself, for I once shot a deer for a friend, but I do condemn the practice as one of the greatest enemies of conservation that we have. There is a rule that all true sportsmen live up to

(Continued on page 37)

COLT selects

the MAN of the Year

SHOOTER EXTRAORDINARY FOR 1938

ALFRED W. HEMMING

Detroit Police

A GLANCE AT HEMMING'S 1938 SCORES

Camp Perry:
Won Orion Memorial with new
Camp Perry record.
Won Center-Fire Timed-Fire
(tied record).
Won Williams Trophy All-
Round Pistol Match new record.

Detroit:
Made World's Record 297 over
.22 National Match Course.
Made World Record 298 Cen-
ter-Fire National Match Course.
Made World Record 192 in
.45 Rapid-Fire.

Tampa:
Won Nat. Mid-Winter Police
Pistol Championship.
Won Center-Fire Slow-Fire
Match.

Coral Gables:
Won Flamingo open all-around
championship.
Won Center-Fire Rapid-Fire.
Won Center-Fire Individual
Championship.

Wilburtha:
Won Individual High Scores.
Shot a possible 100-100-100.

Savannah:
Won Center-Fire Slow-Fire In-
dividual.

THIRTEEN FIRSTS AND SIX TIMES RUNNER UP — ALL IN BIG MATCHES. SHOOTING COLTS EVERY TIME

the TEAM of the Year

DETROIT POLICE TEAM

World's Champions

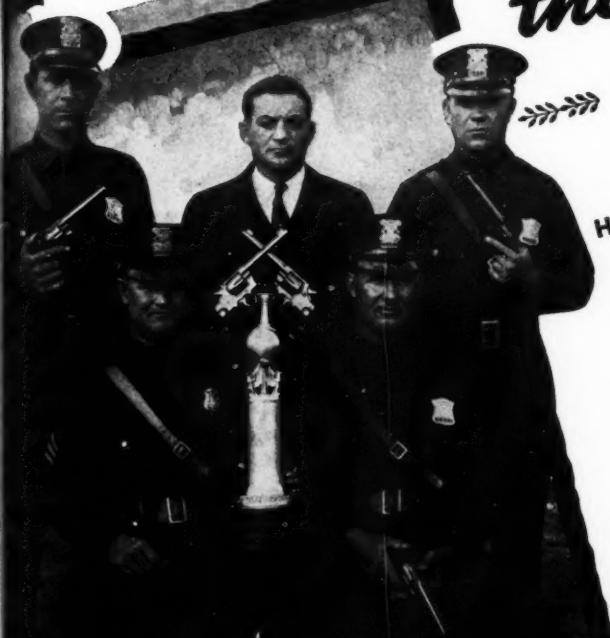
HERE'S WHY:

Camp Perry: Won Colt Trophy breaking former record by 2 points (1151).
Won Interstate and Interservice .45 Team Match 1081.
Tied Pennsylvania Motor Police in Sobel Trophy Match 163.

Tampa Broke World's Record in Center-Fire 4 Man Team Match scor-
ing 1129 over National Match Course—Clipping 7 points off former figure.
Tied previous world's record of 1158 in 4 man team match over Ca-
Perry Police Course.

Coral Gables: Won Center-Fire Team Match.
Sewickley Heights, Pa.: Won National Match Course Team Match.

EVERY MAN SHOT COLTS IN ALL CALIBERS



COUNT THE COLTS ON THE FIRING LINE



er for 1938...

One Year for COLT REVOLVERS and AUTOMATIC PISTOLS

CAMP RITCHIE

BURNTNER, GOULDEN, HINDS, and WILSON shine at Camp Ritchie matches. Together win 14 firsts.



Paul Goulden, U. S. Coast Guard, another Coltshooter who made good at Camp Ritchie taking 4 first places.



Capt. Sidney Hinds, U. S. Infantry, took a first and second place at the Ritchie Shoot, and at Kansas City, April 25-29, won three first places. Runner up in Clarke Memorial Match at Camp Perry.



Practically single-handed M. O. Wilson, U. S. Coast Guard, captured the Camp Ritchie matches, winning 8 firsts and 2 seconds. In addition his 1938 shooting includes a win at Camp Perry and four first places at Providence.

A Colt shooter in all calibers with 13 firsts in major matches.



B. Burner, Pennsylvania Motor Police, who won Center-Fire Match at Camp Ritchie. Member of fast-stepping Pennsylvania Motor Police Team.

COLT

PA AND GABLES

ERS HAD WORLD'S RECORDS

Dominic

World's Man

Score over

Nationwide

team

in

shville, Tex. ELALONDE of Detroit Police has Colt Woodsman shone on Lalonde in the National and Flamingo Tournaments. He went 192 in the National and Flamingo Tournaments. Lalonde at the Team, five firsts and four seconds. Lalonde shot records at Camp Perry—the McGinley .45. Individual with a 289, and the Center-Fire Medal— which he upped five points. Lalonde in all the way.

MOSTELLER SETS WORLD'S RECORD AT BUFFALO

is a Woodsman in Niagara Frontier Pistol Match at Buffalo, N. Y., on April 23. Ray Mosteller of Buffalo, N. Y., scored a brilliant record 277 over the indoor 20 yard National course. Mosteller took other matches in the meet.



HARTFORD
New York City Police Win North Atlantic States Police Team Championship at Hartford



The last-stepping New York City Police at the Hartford Shoot October 15 and 16 annexed the title of North Atlantic States Police Team Champion. At Wilburtha competing with 82 teams, they won the 13th Annual Pistol Team Match. At Providence, they won the Hanley Trophy Match. Every man shoots Colts.



LEO ALLSTOT RU UP 42 STRAIGHT TE in Timed-Fire Match. Leo Allstot, "Rock" Sixth Annual North Atlantic Pistols Tournament, Mason City, Iowa, October 2nd, winning 10 of 14 matches. He sco 42 consecutive timed-fire matches.



T. E. JONES Penn. Motor Police Individual High Scorer the Thomas Affairs McGinley 14th Annual Police Matches held Sewickley Heights, Pa.



LEE ECHOLS U. S. Treasury Department Making a new world's record Echols showed his shooting skill by scoring a 199 x 300 in the Center-Fire Timed-Fire event at Savannah, To show you how hot the shooting was at Savannah, Garfield scored a 199 and the old record of 198 was tied by two others.

At the U. S. Treasury Department Matches at Washington, August 2nd, Echols took 3 firsts—two of them with 300 x 300 possibilities.

At Coral Gables Echols took two events—a total of six firsts, all in important matches.

Echols is a 100% Colt shooter, and can he squeeze a trigger.

HARRY REEVES sets the world's records at the tournament. Beats his score at Perry.

N. R. A. .22 Champion Harry Reeves will at the Pre-Perry Tournament a trait. He scored a 200 possible in the Timed-Fire event using the Match 1 Woodsman and then ran out ten national hits for 30 straight tens. He set world's record 181 in the .45 Slow-Fire and a world's record 197 in the .45 Timed-Fire.

At Perry he took the N. R. A. .22 Championship, broke the Camp Perry record the .45 Timed-Fire and made a set 1938 world's record in the .45 Slow-Fire.

At Savannah he won three individuals and then, teamed with Hemming, set that remarkable 597 in the Two-Team Match.

Reeves is a 100% Colt shooter, too.



PENNSYLVANIA MOTOR POLICE
High team at Teaneck — 7th Annual Police Tournament August 13-14. 118 Teams competed. Won Sobe Trophy Match at Camp Perry, and the Col. Jos. Samuel Match at Providence. Team also came in second in matches at Camp Ritchie, Wilburtha, and Sewickley. Kunkle absent.

Left to right: Bruce Burner, T. E. Jones, T. E. Eshleman, Major Mauk, L. R. Feloni, R. C. McKee, C. C. Snipes, W. A. Stile, Kunkle absent.

NICHI WITH COITS SO CAN YOU

NEW ENGLAND

MASSACHUSETTS STATE POLICE TOPS IN NEW ENGLAND



Left to right:
George Grady,
Theodore Johnson,
James Hughes,
Commissioner of
Public Safety Eugene M. McSweeney,
Hollis Beattie,
Joseph Crescio,
Wilfred Sirois.



DAVE DALTON
Newton, Mass.,
Police



WILFRED SIROIS
Massachusetts State Police

A real big league shooter. Won
two matches at N. E. Police
Revolver League Match at Wal-
nut Hill, Woburn, Mass., May
4-15.



Sgt. Dale Frazier who
won Hawaii All-
Round Champion-
ship at Double Ten
Tournament Hon-
olulu, Oct. 1.



Burrel Berrie (left) and Fraser
Doyle (right), Providence
Institution for Savings, who
split honor in the Bankers
Division at the N. E. Police
Shoot at Providence, R. I.
Each won 2 matches. Berrie
placed second in 6 others.

M. Carr, top shooter
in 5th Western Michigan
Bankers Match held at
Muskegon, Sept. 25th.

20 PRETTY SHOTS BY A PRETTY SHOOTER

Mrs. Esther Sichler who scored a record-smashing 200 possible for women on the Elysian Park Range in Los Angeles. Mrs. Sichler made the record with a Colt Officers' Model Cal. .38 Special.



New
FOR 1939!

COLT SIX-SHOOTER PIN... FRONTIER MODEL

A novel piece of jewelry. Exact scale replica
of the famous Colt Six Shooter.
Faithfully reproduced in Sterling silver, oxidized
finish. 25c postpaid. Get yours today. Pin or Lapel
Button. Available also with loop for charm bracelet.
Here's my quarter coin stamps.

NAME.....

ST. & NO.

25c

COLT'S PATENT FIRE
ARMS MFG. CO.

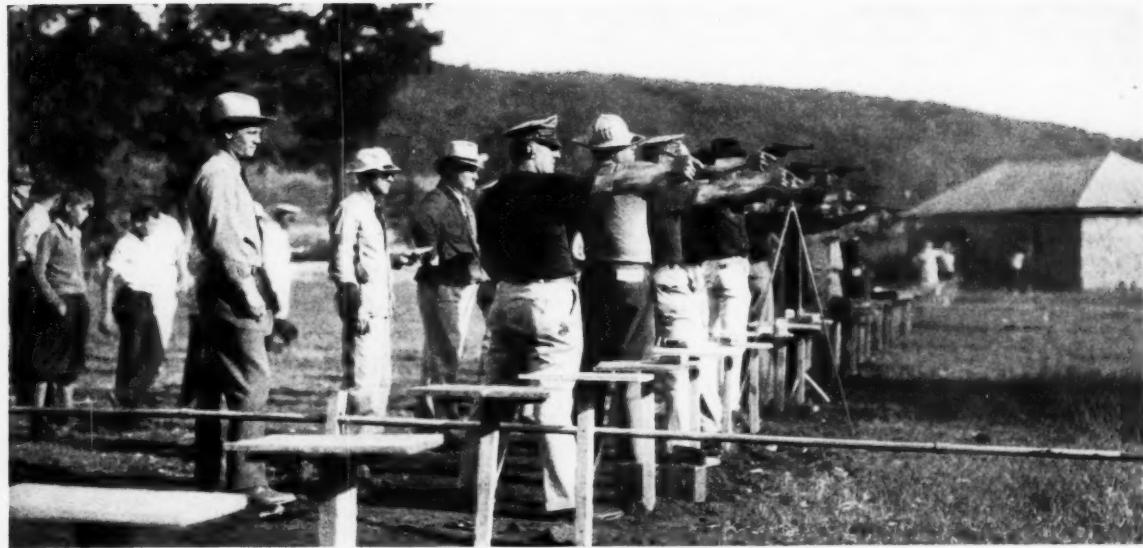
HARTFORD, CONNECTICUT

the Guns of the Year



THE GUN
THAT WON
THE WEST

25c



IMPROVING YOUR SCORE

By FRANK WYMAN

(Concluded from December Issue)

NOW LET'S look into the matter of aiming point. First—remember in this connection that when you are averaging scores of 80 or better at 50 yards slow-fire, the human element enters into the matter of your proper point of aim, just as it does into all other phases of your shooting. At the same time I am one who believes you should hold at six o'clock on the bullseye in slow-fire. The reason I believe a six o'clock hold is better is that the slow-fire time limit gives you ample opportunity to take a careful hold, and the black sights silhouetted against the white of the target show you even a slight misalignment of sights. Such a slight misalignment cannot always be seen when holding into the black, because black sights cannot be silhouetted against a black bullseye; consequently shots will be let off, when holding into the black, which would not be fired if the shooter were using the six-o'clock aiming point.

The leaving of a narrow white line between front sight and bottom of bullseye seems to me to be a mistake, for the reason that the shooter with this system is attempting to judge a white line of the same width for each shot. By leaving no white, he has a definite elevation mark on which to hold the front sight—the exact bottom edge of the bullseye.

On the other hand, I believe that the proper aiming point for timed and rapid-fire is up into the black. Whether it is all the way up to the center, or only part way up, rests largely with you. The reason for holding into the black when shooting under short time limits is psychological. Because you *can't* see the sights plainly enough to notice a slight misalignment, you fire with better rhythm than would be the case if the front sight were clearly silhouetted as it is when using the six-o'clock hold. With practice, you are able to hold at 25 yards on a space that is little if any larger than the ten-ring of the Standard American pistol target, so if you don't see slight sight misalignments you are apt to get a good score because you concentrate upon trigger squeeze and cadence of fire. The long and short of it is just this: you eliminate a large portion of the "jerks" which come when you realize you are running behind on

time due to the time you have wasted correcting minor sighting errors.

When you have established the proper slow-fire aiming point for your eyes, take care that the habit of aiming too long doesn't develop. It is very easy to gradually take more and more time to get off each shot until finally you come to the point of holding from 20 to 25 seconds, and your gun begins to wave all over the target. Try to hold down your aiming time, and you will probably hold up your scoring average. In the neighborhood of from 6 to 10 seconds should be long enough for each shot under calm weather conditions. Should you develop the habit of holding too long, try shooting timed-fire at 50 yards to break the habit.

We all realize that hurrying around just prior to shooting is not conducive to our best scores. Therefore, one of the first things to do is to form the habit of preparing for an event well in advance of your turn on the firing line. If squadding tickets are being issued, get yours as soon as they are ready. Then prepare your equipment so that you can be one of the first to take your position on the firing line when your relay is called. Check your sight adjustment, then blacken your sights, barrel, or slide, and the rear end of your gun, so that no light will be reflected directly back into your eyes. A great many gadgets for shooters are on the market, among them liquid sight black, candles, wicks, etc., but to date I haven't seen anything that equals the old carbide light. The long, strong flame makes it possible to blacken any part of the gun you wish, and the resultant blacking is dull and light-absorbent.

You don't have to follow the *Esquire* clothing ads to be a shooter, but you should give heed and see that your clothes fit the job. This applies particularly to your "chapeau." Whether you wear a hat or cap, be sure that it shades your eyes from sun glare. The man who carefully blacks his sights and gun barrel and then takes no precautions to shade his eyes, is doing only half the job, and might almost as well leave the sight-black off.

When your relay is called to the firing line, take your kit box with you, because you may need something from it unexpectedly. Set your equipment up immediately you take your position, and be ready to load on the command. Then you can relax while others are still rushing their preparations to fire. Doing these things will add points to your score, and will increase your popularity with other competitors, as well as every range officer with whom you come in contact.

Many competitors go into a slow-fire match either with no means at all for spotting their shots, or with the intention of spotting only the first few hits. To do more, they say, makes them nervous. Not to spot any of your slow-fire shots is certainly taking a chance. By no other means can you be assured that you won't have a misplaced group due to change in light, stance, or grip, or to any one of several other causes which can work havoc with your total score, even though your group is normal in size.

It is true that nervousness in a match is something to be guarded against, but try to train yourself not to grow nervous while you watch the group form on the target. Spot all your practice shooting, and keep trying to do the same in tournaments. Keep working at it, and perhaps the training will benefit your scores all the way along, due to better nerve control.

Dry your hands before each shot if the day is warm, or if nervousness is causing perspiration. A large cloth is good, but a chamois skin is the very best of all. The chamois should be well soaked in water and then wrung out dry just before the match. It will then pick up dampness from your hands better than a cloth. Rosin is popular with many shooters, and works well, but in my opinion it is more useful in timed and rapid-fire than in slow.

Frequently we hear a shooter say that eye strain caused him to lose a few points; or, more commonly, you will see a competitor blinking or rubbing his eyes. No doubt about it—eye strain does rob many shooters of badly needed points at slow-fire. One of the best ways to cause eye strain is to use a poor telescope for spotting. Such scopes may be all right in a 50-foot gallery, but stretch the range to 50 yards, and they usually are not satisfactory. I own no telescope factory stocks or bonds, but I surely advocate the purchase of good spotting scopes for better scores. Save your eyes for *aiming*!

Good binoculars work fairly well for spotting, but even the best are less satisfactory than a good prismatic scope. To hold binoculars steady enough for spotting, the power must be so low that anything except .45 and .38 wad-cutter holes are difficult to find at 50 yards. A pair of good 6 to 8-power binoculars is better, however, than a poor 15 to 20-power scope.

Another point about spotting shots is to remember not to stare through the scope longer than necessary. If you cannot see the hit after a reasonable time, go ahead with the next shot, trusting that the last hit will be found on some figure or on one of the lines. Nothing is to be gained by further looking, and the eye strain may lose more points on the remaining shots.

Now, when spotting your shots, don't let the scope wander up and down the line to find out how the other boys are doing. If you are inclined to be nervous (and, by the way, there aren't a dozen shooters in the United States who don't suffer at times from good old "buck fever"), nothing will add to your jitters like watching someone else's target. You can rest assured that the other boys are having their own troubles, so don't worry about anyone's "knitting" except your own.

Ear-stoppers are almost a necessity in any kind of shooting, but in my opinion are needed even more in slow-fire than in timed or rapid. Where the longer time is allowed,

noises such as your neighbor's gun firing seem to be the more bothersome. Concentration appears to be more complete in timed and rapid, as the shooter usually scarcely hears the rattle of shots, even though fifty or sixty men are each firing five shots during the few seconds allowed. Not only will ear-stoppers help by keeping outside noises from bothering you, but with these sounds blocked out you will find it much easier to concentrate upon your immediate job. Use cotton or commercial ear-stoppers. Do not use empty cartridge cases unless you want to risk serious ear infection.

Four or five years ago the tendency was to use a very heavy gun in order to cut down recoil effect. Both Colt and Smith & Wesson brought out heavy-frame revolvers, which for some time proved to be extremely popular target arms. Recently, however, fewer and fewer of these "heavy-frame" .38 Specials have been used by the top-flight shots. I think the average shooter is much better off (for three-stage firing) with a gun the weight of the Colt Officers' Model or the Smith & Wesson Military and Police revolver, than he is with a 44 or 45-ounce gun.

A gun weighing 44 or 45 ounces may cover up more recoil than a lighter model, but it is too heavy for the ordinary pistol shooter to hold at arm's length. The first shot or two are all right, but then the tiring effect of the excessive weight begins to tell, and the gun waves up and down. If you're shooting a ten-shot string, the last few hits are likely to be the kind you want to forget. Almost all shooters have found the big heavy-frame models to be at a disadvantage against their lighter "brethren" for timed and rapid as well as slow-fire. Present-day mid-range .38 Special cartridges have so little recoil that the slight reduction in recoil resulting from the heavy guns proves of little help to higher scores. The big frame makes it hard for the average-sized individual to reach the hammer spur, if he uses the straight-back method of cocking, while the gun is so heavy that a shooter has to be a Tarzan to use the rolling method. My advice is for any shooter to use a gun weighing under 40 ounces. Most shooters are satisfied if their pet "shootin'-iron" contains more 10's and less iron.

Whether you shoot hand-loaded or factory ammunition in tournaments, select your load and stick to it. If something comes out that you think may be an improvement, practice with it until you are *confident* that it is better than the load you have been using. There is nothing so disturbing as to go on the firing line not knowing just what point of aim to use or exactly what to expect from your "gun-fodder." A tournament seldom goes by without someone saying, "Gosh! I dropped the first three shots that string because I changed ammunition—tried a new load. Should have had five points more." Sometimes this is an alibi, but sometimes it's the unadulterated truth, and the shooter has only himself to blame. He may have 200 rounds of tried-and-true loads in his kit, but changed because Jim Talkemscore had some "red-hot stuff," and loaned him twenty cartridges. Know what you're shooting, and then blame yourself for the bad hits.

Golfers say they are "pressing" when they mean that they aren't properly relaxed, as a result of trying too hard. The same term might well be applied to handgun shooters, as there is no sportsman who finds relaxation any more important to his scores. When the going gets tough and you know you can't afford to drop more than three points on the next string, don't tighten every muscle—much as that is the natural thing to do. Stay relaxed, and just try to do your best. Your average score is all you can plan on making, and to do even that you must avoid changing your usual procedure in any detail. A basketball, hockey, football, or baseball player may have his muscles tensed for the

(Continued on page 37)

GUN ACCIDENTS

By W. F. SHADEL

THE safety code, indelibly impressed on a young mind by some true firearms sportsman, has again paid dividends. "What might easily have become a tragedy" so reports the Hutchinson, Kansas, *Herald News* of November 27, "occurred when children in the yard at the Andy Anderson home found a pistol under the porch. Thinking it was a toy the children were trying to snap the gun. 'Papa says never point a gun at anybody,' spoke up little Carroll Pipkin. 'This is the way.' She pointed the pistol upward, and pulled the trigger. It discharged. It was no toy, but a loaded pistol thrown under the porch probably by some passing gunman. Fortunately, the child who had been taught how a gun should be held, fired it."

But unfortunately, this safety education has not been widely taught, and the subject of those needless "accidents" keeps popping up, the publicity attending these accidents tending to harm our game. Just a few reminders that the problem is still with us comes in recent clippings to this office, the latest widely publicized gun injury being that of Monte Stratton, ace pitcher of the Chicago White Sox American league team. Stratton, hard-luck lad of the pitching fraternity, was first reported seriously injured while "at target practice." Notice how often that phrase is carelessly tossed about in reports of accidents. Truth is, as corrected in later reports, Stratton was carrying his pistol in a holster (evidently cocked) while hunting. He brushed against a twig, and it was discharged, the bullet going down through his right thigh. Amputation of that leg followed, and a great baseball star was lost to the game. We join the sports columnists in their plaint over his loss, and with them extend to Stratton our sympathy. We only wish that we might have reached and impressed him earlier with the NRA ten-point safety code. That code, again emphasized in a release sent out to all the newspapers of the country, has been widely accepted and approved by editors, safety directors, educators, and sportsmen. And with this acceptance, we feel we should again urge our members and our clubs to constantly preach the doctrine.

From the accident angle, or any other, our sport scarcely needs a defense. What it needs is a good offense. Incidents like the following obviously prove the "unnecessary" theory: "Texas hunter killed. The victim and two companions had set up camp. He was unloading a car and is said to have pulled a rifle from the machine, it being accidentally discharged." Or: "Girl wounds youth. Believing revolver unloaded, she aims at Kenneth Dehn. They went into the kitchen and Margie smilingly picked up the revolver left there by a friend. She playfully pointed it toward Dehn. A streak of fire came from the barrel and Dehn staggered."

Now in spite of these reports, which receive a black headline in the papers, and the wholesale contributing causes of negligence on the part of the "uneducated," firearms cause only 3% of the accident fatalities within a year. Automobiles cause 38%—four every hour or one every fifteen minutes, and yet such items are no longer even news. As Edwin Stuart puts it in his editorial classic *Typo Graphic*, "It takes a slaughter of a whole bus load of school kids to make the front page and get a black headline." Latest Bureau of Census statistics show 38,000 killed in accidents about the home. Of these, 19,000 met death by falling off stepladders and down cellar stairs; and again Stuart's laconic comment, "so if your wife wants you to help clean

the windows, tell her huh-uh—too dangerous," and, "never take a bath, for four thousand five hundred people were killed in these United States last year (1936) by stepping on cakes of soap while getting out of their bathtubs, and another 4,500 were electrocuted by grabbing electric light sockets with wet hands."

Of the 3,000 deaths due to firearms out of the nation's approximate 100,000 annual fatalities, about one-third or 1,000 are due to hunting accidents. While the government statistics fail to list hunting accidents separately, the records of several individual states, as well as those of certain Life Insurance companies, indicate these 1,000 deaths are incurred by hunters afield. Now as to these hunting accidents, an interesting analysis from the Metropolitan Life Insurance Company's Statistical Bulletin of 133 deaths in typical shooting accidents on the hunt, which occurred among policyholders of that company, might be worthy of repetition here as it substantiates the precautions suggested by the safety code (page 39).

"Deaths resulting from self-inflicted wounds were the most frequent, accounting for a total of 60, or 45 per cent of the fatalities. Sixteen of these deaths resulted when hunters slipped, stumbled, or fell and their guns were accidentally discharged. Risky and unsteady footing while climbing banks, slipping on frozen ground, failure to keep the gun locked in 'safe' position, and carrying the gun in dangerous positions, were some of the contributing factors in these accidents. [Rules 4 and 6]. Climbing over or through a fence while carrying a loaded gun, or pulling a loaded gun, muzzle-first, through a fence, caused 13 deaths. [Rule 8]. Ten were killed as they lifted loaded guns from automobiles, canoes, or other vehicles of transportation. [Rule 2]. Four deaths took place when guns carelessly carried became entangled in thick brush and discharged. Four men also were killed by the accidental discharge of guns held between their knees as they sat on the ground. [Rule 6].

"Accidental shooting by a hunting companion was responsible for 48 of the tragedies, or 36 per cent. The accidental discharge of a companion's gun caused 39 fatalities. Five were killed when they stepped into the line of fire of another marksman. Three fatalities resulted when bullets ricocheted, striking a companion. [Rule 9].

"Nineteen persons, or 14 per cent of the total 133 victims, were killed by hunters in parties other than their own. Nine of these 19 were mistaken for deer or smaller game by hunters who were too impatient to take the time to distinguish the object definitely. [Rule 5]. Five hunters were killed while resting; by the accidental discharge of guns set against rocks or trees. In some manner these guns fell or were knocked down and discharged." [Rule 7].

In the recent questionnaires sent out to club secretaries, we find, as we anticipated, some useful thunder to combat the cries of the anti-gun cranks.

In better than 800 of these questionnaires filled out and returned to date, six clubs report accidents for the current year, all of them only minor affairs. One was due to defective equipment, and caused slight powder burns. Another was the result of experiment.—In trying to pierce a $\frac{1}{2}$ -inch steel plate, a ricochet caused a minor cut in leg. Still another was due to a ricochet from a bullet which got away from a beginner, causing a slight scratch. And so on. In the report covering the history of the club, some of which

(Continued on page 39)



The shooter at the age of 6

TEACHING A SMALL BOY

By H. G. ENTERLINE

RIFLE shooting is dangerous; so is driving an automobile, crossing the street, descending the stairs, taking a bath, using a pair of scissors—one might go on indefinitely listing the hazards of present-day living.

There are, perhaps, three attitudes to be taken toward these hazards, rifle and pistol shooting particularly: First, that of prohibition; second, rendering the instruments accident-proof; and third, education. The prohibitionist would do away with firearms entirely, thereby eliminating crime from the face of the earth and establishing world peace. He is forgetting two things: a recent unfortunate experience with one prohibition program, and the fact that felons were bashing in heads long before firearms were invented.

Much can be done, and has been done, to reduce accidents through the designing of fool-proof instruments. The automobile must pass a more or less rigid inspection, the stairs can be repaired, scissors with rounded blades only should be permitted in the hands of children—so too can firearms be designed to eliminate many of the hazards attending their use.

But not even the most skillful designer, nor the most rigid inspection will eliminate the hazards caused by careless operators. Educators are beginning to realize this and

all over the country today schools are giving instruction in safety education. Can I keep my child safe on the streets by never permitting him to cross the street? Can I prevent him from cutting his fingers by never allowing him to whittle? Must I rip out the back stairs because someone once fell down and broke a leg? Must I junk my car because automobiles were responsible for 40,000 deaths last year? Must I, a law-abiding citizen, scrap my guns and give up my shooting hobby because some vicious gangster



flashed a weapon? Sooner or later the child *will* cross the street, he *will* get a knife in his hands, and, yes, he *will* get his hands on a gun. Is it not better that I teach him how to cross the street properly? Is it likewise not better for me to teach him how to safely use a knife in whittling? Is it not better that he learn to use a gun safely? And more important still, is it not better that he develop a proper attitude toward a gun—that he look upon it as an instrument of precision and fine workmanship capable of rendering many hours of safe and pleasurable enjoyment, rather than gain the impression from tabloids and cheap movies that a gun is primarily and solely an instrument of death? And further, is it not easier to teach the proper procedure from the start rather than to wait until undesirable habits have been formed, and then attempt to condition them? To the thinking person the answers to these interrogations are obvious.

When, then, should instruction begin? At the first sign of curiosity. Curiosity must be fed. This is fundamental to all learning. To starve it, paradoxically, is to inflame it and to cause perchance a repression to be satiated later through subterfuge. Will the reader pardon a personal illustration? As a boy, I was forbidden to touch a gun, much less own one, yet they

The three rifles used to train the young marksman. In the three other pictures he is shown with the largest and smallest of these rifles.



were hidden about the house. When, one day my father permitted an older brother to shoot at a rock, but absolutely forbade me to duplicate the stunt, the desire to shoot and possess a gun became an obsession. The result: treacherous weapons fashioned from hollow umbrella stems and pieces of pipe loaded with powder purloined from a well-intentioned parent's (so-thought) secret store. Later a decrepit old .22 rifle was purchased for five cents and kept hidden away in the barn. Luckily, I still have both eyes. And I don't think I was a particularly incorrigible rascal either.

Such instruction will of course entail many hours of labor, but in all the world there is no greater sport than shooting with one's own son, knowing that he has a pretty fair idea of what he is doing, that he will not wander into the line of fire, swing his own gun in your direction, or pick up the first gun he sees, point it at someone and pull on the trigger. What joy, what pride in viewing a beautiful stock designed by a craftsman! How much greater still is the satisfaction in molding a boy's character free from prejudicial biases, and in ingraining proper habits of conduct! One more personal experience: In the process of taking the photographs of the guns illustrating this article, the bolts were closed. Later, while rearranging the furniture, et cetera, the guns were temporarily placed across a chair. The boy, six years of age, came into the room and with no hesitation remarked: "Daddy, these bolts are closed." Likewise on ranges during matches, he has called attention to adult shooters coming off the firing point with bolts closed. Keeping bolts open when off the firing point has become as natural to him as removing his hat and coat when he comes indoors. These are the rewards of time and labor spent in instruction. Somehow it sort of makes the whole thing worth while, and arouses a comfortable feeling deep down inside.

Safety habits can become as much a part of an individual as the washing of hands before going to the table, or the brushing of teeth. But it is not to be assumed that once habits have been taught no further attention is necessary. Anyone who has had any experience with young people, any parent, knows better. Children, by their very nature, are careless, forgetful and negligent. Constant vigilance is the price of safety.

To consider the mechanics of instruction:

As soon as the child shows a marked curiosity toward guns, the time is ripe for instruction. In this instance the boy was two and one-half years of age. He was taken along as a toddler to rifle ranges and showed a keen delight in the sport, frequently lying upon the ground or upon the floor and pointing sticks at targets.

Believing, as a parent, that a child's interests should be fed, a make-believe gun, carefully designed and cut to fit the youngster, was fashioned from heavy cardboard. He displayed such keen interest in this gun that the idea of letting

size of the bull was decreased, going first to the 100 yard Standard American Rifle Target, then to the 60-yard Pistol Target and finally to the official 50-foot Junior Practice Target. After many discouraging 18's and 19's the shooter finally qualified as a Pro-Marksman at the age of three and one-fourth years.

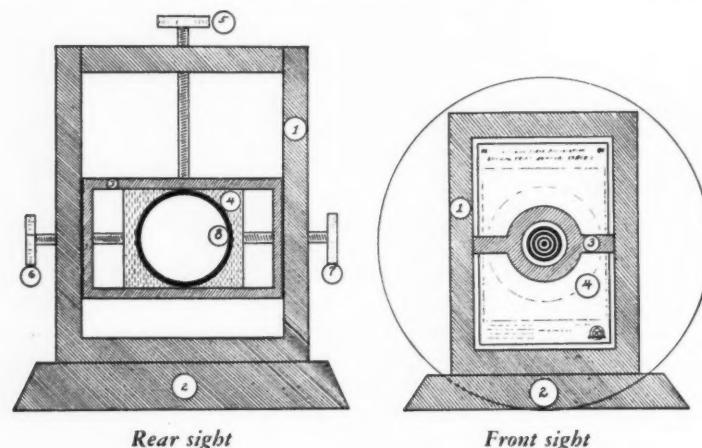
This gun, although very satisfactory for the teaching of sight-alignment, has many disadvantages: First, the field of vision is very small, revealing the center of the target only as far as the "3" ring. Much difficulty in finding the target was encountered, but once found a "3" or better was practically assured; Second, it was inaccurate, because the tube contained no device to center the bull; Third, it had an obstinate trigger pull which defied all efforts to render it smooth—always releasing with a decided jerk. Fourth, it was likewise rather difficult to load this gun with the tube extending over the loading port. It will probably never be used again, but is being preserved as an invaluable trophy in the shooting life of a child.

In an attempt to eliminate the difficulties encountered with the first gun, a .22 Savage Model 1904 was selected for gun number two. The stock was cut down and shortened, the cocking piece cut off, and trigger and trigger guard reshaped. With a bit of touching up this trigger released the hammer very smoothly and beautifully. A bit of experimentation revealed that the shooter was still not prepared for the conventional sights, and a compromise arrangement was decided upon, utilizing the tube sight feature but designed to introduce the conventional sight. This gun has an over-all length of $30\frac{1}{2}$ " and weighs a trifle more than two pounds. It is the middle one in the group of three shown.

him actually shoot developed. In shopping around, the only gun discovered that in any way appeared to be even slightly satisfactory was a Stevens Little Scout. The stock was cut off, moved forward and remodeled, adding an unsightly, but effective, pistol grip. Due to the excessive drop in the stock on this gun a rather high cheek piece was added. The butt was given a deep concave surface to prevent its slipping off a small shoulder. A rather unique fore-end was added to assure a firm and comfortable grip for a small hand.

When completed, a try-out was made with .22 BB's at about 20 feet using the Standard American 50-yard pistol target. Even under these favorable conditions it was impossible to get the idea of sight-alignment across to the two-year-old. It was then that the full-length tube sight was added. This tube sight is adjustable for elevation and windage. Adding a snake-skin sling and a deerskin butt plate, just as a final flourish, the whole arrangement appeared as shown (the smallest of the three guns). The over-all length of this gun is $30\frac{1}{4}$ ", and it weighs a shade less than two pounds.

In using this gun the shooter wore goggles with the left glass blackened and the right glass removed so that the cap which formerly held the glass fitted neatly over the end of the tube (see second picture). With the shooter in position, then, he never failed to hit the target which was gradually moved back to fifty feet. As accuracy increased the



Rear sight

Front sight

The tube sight on this gun extends about half way down the barrel, thus increasing the field of vision. The tube fits snugly into a small metal block adjustable vertically and horizontally. For details in the design of this rear sight see the cut at left. This sight is approximately $\frac{1}{2}$ " wide, $\frac{5}{8}$ " high and $\frac{5}{16}$ " deep. The front sight is a rectangular metal block with a small central aperture. At fifty feet this rectangular front sight just frames the entire 50-foot Junior target with the bullseye automatically encircled by the small aperture when the target is framed. The sight is a natural—to look through it is to frame the target and to center the bullseye with a minimum of effort and concentration. Canting is automatically corrected. Details are shown in the other cut on this page. Dimensions of this sight are approximately as follows: Outside width $\frac{5}{16}$ ", inside width $\frac{3}{16}$ "; outside height, $\frac{7}{16}$ ", inside height $\frac{9}{32}$ "; diameter of the aperture $\frac{3}{64}$ ". The large circle enclosing the entire sight in the illustration represents the approximate field of vision. This proved to be a very accurate arrangement and the shooter quickly completed the Marksman and Marksman-First-Class stages. The addition of a pistol grip would have improved the appearance of the gun and increased facility in holding. One major fault in design is the excessive drop in the stock which is plainly evident in the photograph. Unfortunately the bolt on this gun

(Continued on page 37)

THE 1873 in .22 CALIBER

By OTTO A. WAGNER

THE MODEL 1873 Winchester rifle in .22 caliber is interesting to all riflemen for at least two reasons: It was the first .22-caliber rim-fire repeating rifle to be placed upon the market, and for several years was the only one, and it was the rifle with which the famous Doc Carver did his shooting at aerial targets, and with which he made records that to the best of my knowledge still stand.

In appearance this rifle is almost identical with the same model in the larger center-fire calibers—.32 W. C. F., .38 W. C. F. and .44 W. C. F. The only external differences are that the loading gate, located in the right side-plate of the receiver on the center-fire rifles, is omitted on the .22 rim-fire, while the barrel of the .22-caliber is a little smaller in outside dimensions than is the .44-caliber barrel, the former measuring .876-inch at breech and .744-inch at muzzle, over the flats of the octagon barrel. The magazine proper consists of a tube which fits inside of the regulation magazine tube under the barrel, and is withdrawn for loading, as is the common practice today. The weight of the .22 rifle, however, is practically the same as that of the .44, which lists at 9 pounds.

A .22-caliber rifle that I weighed recently ran 9 pounds 2 ounces, and is a man's-size .22 rifle, all right. It just recently came to me to be relined and repaired. It was in practically new condition except that the bore was ruined by rust, the blue finish was lightly specked with rust, and the extractor was broken. It was in the best condition of any of these rifles that I have ever seen, though I haven't seen many.

I had for some time desired to get hold of one of these rifles to reline, just to see what could be done with it in the way of accuracy; but when I took this one apart to begin operations, I had a surprise coming. I found, to my surprise and amusement, that these Model 1873 .22-caliber rifles have no firing pin, in the sense that the center-fire rifles have; instead there is a small projection on the left-hand edge of the face of the breech bolt, and this takes the place of the point of a firing pin. In this respect the rifle is much like the Marlin Model 50 automatic rifle.

This combination breech-bolt assembly or firing pin—whichever you wish to call it—weighs $3\frac{1}{2}$ ounces, and the heavy hammer of the Model 1873 drives the whole breech bolt forward with force enough to fire the cartridge! There is a little slack in the joints between the breech bolt and the locking toggles, which permits of a slight forward movement of the bolt.

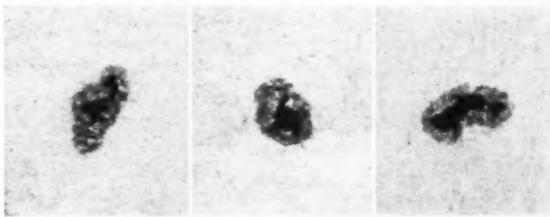
Upon discovering this peculiar firing arrangement, my fond hopes of making anything accurate out of the rifle went glimmering. I certainly expected such a rifle to do nothing but string its bullets up and down on the target for at least three-fourths of an inch at 50 feet, as certain models of pump-action rifles insist upon doing. However, in this I was in for another surprise.

Anyway, I went ahead and relined the barrel, doing my best to make an accurate job. I breeched it up so that the breech-bolt lug rested firmly against the cartridge rim when the bolt was cammed home by the locking toggles.

When I had the job completed I tested the rifle at 50 feet on a machine rest, as is my custom. The first ten shots were with Super-X hollow-point and the group was almost rectangular in shape and measured $\frac{3}{8}$ -inch horizontal by

$\frac{1}{2}$ -inch vertical, on centers of bullet holes. Nothing particularly remarkable, but even at that it was as good as we get from the light-weight pump-action rifles, as well as some of the cheaper bolt-actions. I then tried the rifle with Remington Kleanbore cartridges, and got group No. 1.

Then I discovered that the rifle was shaving some of its bullets as they passed from the carrier into the chamber. This I later corrected, but in the meantime I tried another group with the same ammunition and using the rifle as a single-loader. Group No. 2 was the result and equals the accuracy of the best target rifles that I have had a chance to try out. Thinking that bullet-shaving might have had something to do with the first group, with Super-X, I tried another Super-X group a few days later, the result being group No. 3. There was a variable side wind when I fired this group. I tried to catch the low spots in the wind, but do not know if I succeeded.



No. 1

No. 2

No. 3

These are not selected groups from out of a number, but were the first groups fired from the new bore. However, they show no inclination on the part of the rifle to string its shots on the target because of variable ignition, as I had expected would be the case with that $3\frac{1}{2}$ -ounce combination firing pin and breech bolt.

I do not think that this firing mechanism would class as a speed-lock; and, indeed, if this is not a slow lock then I would not know how to design one. Nevertheless, with this same arrangement old Doc Carver connected with moving targets with great regularity. How did he ever do it?

Another experiment I would like to make with the Model 1873 is to take one of these actions in center-fire and in good condition, and fit it with a heavy .22-caliber target barrel, discarding the tubular magazine and installing a box magazine in the space now occupied by the carrier block. I would also discard the hammer and firing pin, and build into the bolt a speed-lock similar to those found in up-to-date bolt-action rifles; also stock the rifle properly. The result should be a lever-action target rifle that would compare favorably with any other type. The 1873 Winchester receiver is stiffer than that of the old-type 52, and the metal is so distributed as to minimize vibration.

In conclusion I wish to say that, based upon my own experience, I do not think a speed-lock adds anything to the real accuracy of a rifle as indicated by bench-rest or machine-rest shooting. Its value is manifest when shooting from the less-steady positions, and even here the advantage probably lies in the shooter's ability to let the shot off when he wants to, the improved speed-locks being somewhat like set-triggers.

The Old Coach's Corner

NOTE—In beginning a new year, we are glad to be able to present to our readers again the Old Coach, who has been absent from his corner all too long. We hope that he will be able to carry on with us regularly each month now, and that his services will not again be interrupted or withdrawn. For, letters received since the Old Coach left his corner, some time ago, indicate that he is widely esteemed, and his services highly valued. As to who the Old Coach is, he has asked us to say for him simply that he prefers to remain unknown, in order that he "can say what he d—pleases," and thus be of the most help to his readers. We will say, however, that his knowledge is broad and his experience great.—Ed.

IN resuming his corner the Old Coach will endeavor each month to give you newcomers to the shooting game a little of the foundation and history of the rifle, a little of its science, and a little as to its practical use,—that is, a well-balanced meal as it were. I don't know how long I can keep up such a balance, but at least I hope to be able to spill a little interesting dope in each issue—things that the old-timers learned long ago, but that most of us have forgotten that the newcomer does not know, but needs to know.

Class and Power

According to the newspaper reports, every rifle is a "high-power" rifle. But is it? Certainly few phrases are more commonly "over-used" today than these words "High Power." And this brings us to the classification of rifles as to their power. Half a century ago when I started to shoot, all rifles used black powder, and were divided into two classes—the ordinary rifles, and the "Express" rifles. The ordinary ones shot fairly heavy bullets and moderate charges of powder, had rather low velocities running from 1100 to 1350 feet per second, and their trajectory was quite curved. In 1856 James Purdey, of London, introduced a new type of rifle for sportsmen having a slightly lighter bullet, a much larger charge of powder, and thus a muzzle velocity from 1600 to 1800 feet per second, and consequently a longer point blank range. These rifles Purdey called "Express Train Rifles," which term was quickly shortened into "Express Rifles." An express rifle is therefore one shooting a rather large charge of black powder, a light lead bullet, and having a slightly higher velocity than usual.

About 1897 our American factories introduced rifles using smokeless powder, jacketed bullets, and having a much higher muzzle velocity. The velocity at the start was about 1960 feet per second, much higher than it was possible to obtain with black powder. In a few months, by common consent we were calling these rifles and cartridges "high power."

Gradually our manufacturers developed new cartridges with still higher muzzle velocities, and these were so much more powerful than the high-power weapons that a new name was needed for them. Dr. W. G. Hudson, a very skilled and prominent rifleman of twenty-five years ago, suggested the term "High Intensity" but it did not stick. Then our British cousins coined the word "Magnum" which still remains with us and means a rifle or cartridge having a muzzle velocity of 2500 feet per second or over. (And right here let me present abbreviations you should know. The words "feet per second" are usually abbreviated into "f.s." and the term "Muzzle Velocity" is usually stated as "M.V.")

Thus rifles taking cartridges like the .22 rim fires, the .25-20, .32-20, .32-40, .38-55, and .45-70 are correctly designated now as "Low Powers." The .30-30, .32-Special, .35 Remington, and the .30-40 Krag are the "High Powers." And the more modern cartridges and rifles such as .220 Swift, .250-3000, .30-06, and the .300 and .375 Magnums are correctly referred to as "Magnum" cartridges and rifles.

Spin and Wabble

When a little boy spins his top it revolves standing straight up at first, "goes to sleep" as it were. But soon it does not spin so fast, it begins to wabble, and finally it falls over. A bullet fired from a rifle and flying through the air does precisely the same thing, and for the same reason. The bullet is caused to spin rapidly by being fired through the rifled barrel. At first, and for quite a distance it "goes to sleep" and spins point to the front. Then at very long range, as its velocity of rotation begins to fall off the bullet starts to wabble, and finally it turns over and flies any old way.

Rifle barrels for different cartridges are made with different rates of twist in the rifling. If the rifling makes one complete turn in ten inches of barrel length we call that a "ten inch twist." The longer the bullet (or the longer the top) with respect to its diameter, the quicker must be the twist to make it spin truly point on. Also the lower the velocity at which we fire a bullet the quicker must be the twist to make it spin point on. The .22 Long Rifle cartridge requires a twist of about one turn in 16 inches to spin its 40 grain bullet point on, but rifles for the .22 Short cartridge require only about a 20 inch twist to spin their shorter 30 grain bullets. However, still keeping to the .22 caliber, if we give the bullet a much higher muzzle velocity, a slow twist will then spin it all right. For example, the 20 inch twist will spin the 45 grain .22 Hornet bullet all right because that bullet is fired at twice the velocity of the .22 Short. Some experimenters have tried chambering 20" twist barrels intended for the .22 Short cartridge, for the .22 Long Rifle cartridge, but the bullet of the latter fails to fly point on in this slower twist, it wobbles and makes an oblong hole like a keyhole in the target instead of the usual round hole, hence the term "Keyholing." Our Springfield rifle taking the .30-'06 cartridge has a 10 inch twist for military purposes, that is to spin the bullet point on to extreme military ranges where the bullet is rotating slowly. If the .30-'06 cartridge were used only for sporting purposes, then a 14 inch twist would suffice to stabilize the bullet at sporting ranges up to 500 yards at least. A slow twist (provided it is fast enough to spin the bullet to the desired distance) is usually considered an advantage as it causes less friction and heat in the bore, and deforms the bullet less.

Spinning tops and bullets are little gyroscopes,—rapidly rotating bodies which tend to retain their axis in the same plane it was in when the rotation started (the barrel). They strongly resist all impulses which would tend to force them out of that plane (the plane of the barrel). This is what causes a rifle to shoot its bullets far more accurately than a smooth bore gun would. The bullet tends to keep in the same vertical and horizontal planes as that of the barrel where its rotation started.

The First Shot

When you get a new rifle, always wipe all the oil and grease out of its bore and chamber before you fire the first shot from it. Usually the manufacturer attaches a

tag to the rifle which tells you to do this. But remember it, never forget this caution, because if you do in all probability you will immediately have a completely ruined rifle on your hands. That is, if you fire a rifle with heavy grease in the bore the barrel will be bulged and ruined. In fact, if it is a high power or a magnum rifle the barrel may split wide open from breech to muzzle.

Firing a rifle with a light coat of thin oil in the bore won't do any damage, but it almost always causes the bullet to fly high and wild. So your old timer always wipes his bore clean and dry before he fires the first shot. Even then, with some rifles, particularly .22 caliber rifles, both low power and magnums, the first shot is liable to fly a little wild, or even quite high above the normal group. From this comes the custom of firing "sighting" or "warming" shots before starting in with the scoring or record shots. Except in military shooting, sighting or warming shots are usually permitted in all matches. You fire these shots on the bullet stop just to one side of your target before you start your score. Or your target may contain an extra bullseye on which to fire sighting shots. Thus you start your score with a fouled and slightly warmed rifle, and it shoots more accurately and uniformly that way.

In military shooting, sighting shots are usually not permitted, but happily our military Springfield rifle is one of those in which a shot fired from a clean, dry bore usually strikes in the same small group with the succeeding shots.

A THEORY OF RECOIL

(Continued from page 9)

for our purpose, so we suspended the gun from long wires, two attached near the muzzle and two near the chamber. When fired, the gun swung in recoil as on a pendulum. A graph graduated in $\frac{1}{8}$ " and placed within 6" of the gun, and parallel to it, was used as a background so that all movements of the gun could be detected and measured. (Note: Since we do not know the period of such pendulum, we are necessarily forced to confine quantitative results to very small arcs. With such a restriction, we believe the results are tolerably accurate and may fairly be compared with the theoretical values for free recoil.)

We avoided any interference by discharging the gun by burning a very fine thread with the flame from a wax taper. We believe this method of suspension and discharge will give tolerably accurate measurements during the early moments of recoil.

We took pictures of the recoil of rifles with a movie camera having a speed of 128 exposures per second. The limitations of such speeds are obvious when the speed of the bullet and of the gun are considered. It is hoped that readers may be able to refer us to similar pictures taken at higher speeds, or to published reports, in their own behalf. The results would be most interesting.

Notwithstanding the crudity of the apparatus, we were able to get some most interesting results, using the same rifle in all cases, and firing a total of 61 shots with both black and smokeless powders, and with and without muzzle brakes.

In all cases except one the displacement from rest as shown by the first picture after ejection is between $\frac{1}{16}$ " and $\frac{1}{8}$ ". This displacement is that of the rifle. The exception is a case in which no movement is registered, although the rest of the swing appears to be normal. We cannot account for this.

Thus in 60 shots using normal loads for the rifle and an interval of 1/128 second, we have never found a recoil of more than $\frac{1}{8}$ " for the first picture after ejection.

Characteristic recoils for several cases are described below. The figures following the descriptions are for successive pictures taken at 1/128-second intervals, and are given in inches of horizontal displacement of the pendulum during the previous interval. All those given were made with the same Enfield rifle, firing standard .30-'06 Service cartridges with boat-tail bullets for the smokeless-powder tests; and .30-'06 cartridges loaded with 64 grains of FFFg black powder with 220-grain flat-base bullet.

(1) Black Powder, no brake, horizontal swing:

$\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{2}$ ";

(2) Black Powder, using brake with over 50 per cent efficiency in eliminating recoil, horizontal swing:

$\frac{1}{16}$ ", $\frac{1}{2}$ ", $\frac{1}{2}$ ", $\frac{1}{8}$ ";

(3) Smokeless Powder, du Pont No. 3031, no brake, horizontal swing:

$\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{2}$ ", $\frac{1}{2}$ ";

(4) Smokeless Powder, du Pont No. 3031, brake with 60 per cent efficiency in eliminating recoil, horizontal swing:

$\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ".

These results are characteristic. The displacements observed from the first picture showing movement seem to be entirely independent of the presence of a brake. The displacements shown during the next succeeding interval show the effect of the brake in all cases.

This seems to be inconsistent with the theory of equivalent momenta. If a substantial momentum is built up while the bullet is still in the gun, we ought, in 60 shots, to pick up a case in which displacement is relatively great for the first or second interval. This we have not done.

A study of the balance of the swing of such a pendulum is fraught with difficulty. We can interpret results only by reference to the applicable data obtained on ballistic pendulums of large weight, resultant small swing, and reliable calibration. With these limitations we are able to get satisfactory relative results for the total recoil with similar charges, and the relative efficiencies of varying designs of muzzle brakes.

NOTE—A third article will conclude this series on recoil, and will attempt to round out and clarify the discussion. We might add that Mr. Hughes is an engineer who for five years has been working with a recoil-control device of his invention, while Mr. Bodfish is a scientist and a graduate of the U. S. Naval Academy.—Ed.

HOME GUNSMITHING

(Continued from page 17)

the end of the buttstock to the rear edge of the pistol grip. This line will be the bottom edge of your stock.

Draw the outline of your cheekpiece on the side of the stock, left or right, and chisel around outside of this line with a $\frac{1}{2}$ " gouge—except at the top, of course, where the cheekpiece will merge into the top line of the comb. From this point on, regular stock-shaping operations are followed, using chisels sparingly and depending more upon the half-round cabinet file, the curved side of which cuts much faster than the flat side. In reducing the thickness of the stock on the opposite side from the cheekpiece, the jack plane can be used to advantage—but be sure *not* to use it against the grain.

The alternative method of altering the buttstock is to set a piece on the top to raise the comb, and to either inlet a block or set a piece clear along the bottom to make a pistol grip. In setting in a piece to raise the comb, this piece must come down far enough so that the regular contour of your buttplate can be followed in shaping up the sides of this piece. If it does not come down far enough,

when you come to shape up the new piece with its added height you cannot carry out the curve on the side of the stock, clear to the top, without narrowing the buttplate down more than it should be. This matter does not cause much bother on the Enfield stock, but in remodeling a stock on a hunting rifle that is thinner and has a greater curvature on the sides, you may come a cropper if the top piece is not set down far enough (Figure 2).

This same advice applies in increasing the drop of a stock when it is necessary to add a piece on the bottom. Be sure and get this bottom piece set up far enough at the buttplate end so that the regular curvature of the stock can be followed without thinning the stock down in the center, or the toe of your buttplate will run almost to a point. This bottom piece can be wedge-shaped, with the thin end of the wedge coming just back of the pistol grip.

When adding a top piece to a stock to raise the comb, the cut for it should be run an inch or more up the grip, with a depth of at least half an inch at its thinnest point, and the forward end undercut so that the end of the added piece runs slightly underneath, which will prevent its loosening and rising if the stock is ever sprung (Figure 3). This cut should be carried straight back to the buttplate end, and the piece to be added should be spotted-in, using files and scrapers to remove the high spots. After the contact is as perfect as you can get it, hollow it along the middle slightly so that the closest contact is along the edges.

When gluing this piece in place, a casein glue or hot hide glue should be used; and if you have no C clamps large enough to go across the stock, and no cabinet-maker's clamps, the vise may be used by placing a heavy piece of hardwood along the upper edge of the glued-on piece, and a like piece of hardwood along the bottom. Between this piece of hardwood along the bottom of the stock, and the stock itself, you should place a piece of heavy felt or a thick pad of newspaper to prevent marring the stock—unless you intend to do some alteration work on the bottom edge of the stock, in which case the pad is not necessary. Just before the last pull on the clamps or vise handle to give the desired clamping effect, the piece you are gluing onto the top of the stock should be tapped forward from the rear end with a hammer so that the front end has a tight seat in its undercut—but above all things be careful with this tapping so as not to split a piece off the top of the grip in front of the joint. When this piece has been tightly seated by tapping, then give your clamps or vise the final tightening, and leave for 48 hours.

Sometimes, to get the desired height of comb for scope use, it is necessary to make a Monte Carlo comb, in which case the top of the buttplate is left at the same height as it was originally, and the comb dropped down to meet it about one inch forward of the buttplate.

Another method sometimes employed, especially with a .30-'06 that is used with both iron sights and telescope, is to plane off the top of the stock not quite down to the top of the grip at the comb, and about an inch below the top of the buttplate at the heel, and make two interchangeable combs of different heights. A flat-backed buttplate should be used, and a screw-hole made in it a little below the flat upper edge of the main stock, so that the plate is fastened with two screws to the original stock. After both combs have been fitted, by spotting-in, to the top of the stock, two $\frac{1}{2}$ " or $\frac{3}{8}$ " hardwood dowels are fitted into each comb, and glued in place, one near the front and the other near the rear. Holes for these are drilled into the top line of the main stock, and made a close push fit for the dowels. These dowels must be in the same position in both combs, as they must fit the same holes in the top of the stock.

In the center of the top of the stock, midway between the dowel holes, a short steel plate is inlaid slightly below the surface, and fastened down with two good, strong screws. In the center of this plate is a tapped hole for a $\frac{3}{8}$ " fine-thread cap screw. Into the upper edge of each comb a steel plate is also inlaid, directly above the one in the stock, but this plate is set in deeply enough so that the head of the cap screw it is to receive, through a hole drilled through it, will be slightly below the top edge of the comb. Saw and file a slot in the heads of these cap screws (one screw for each comb) so that they may be tightened with a coin. The rear ends of these combs should be a fairly tight fit against the buttplate, and the comb for telescope use will probably have to be a Monte Carlo type unless you use a good deal of heel drop. These combs can be quickly and easily interchanged while on the range, and will give you proper face support with either type of sights. The hardwood dowels should be well waxed on the ends that extend down into the top of the stock, and so should be the holes in the stock, so that the wood will not absorb moisture and swell to too tight a fit. Figure 4 should make all this clear.

(To be continued)

THE MODERN RANGE

(Continued from page 15)

mercial Transceivers now on the market. Probably you can pick up a couple of second-hand ones at some radio store for around ten bucks apiece, and they will do a job for you that will be worth ten times as much as they cost. They are all complete with batteries—the low-cost dry kind, and measure about 12" by 7", by 10" high. They probably weigh ten pounds. For an antenna, one hooks on a 4-foot piece of No. 12 copper wire or a piece of 3/16" copper tubing. To talk to the other chap, turn the switch to "transmit," and go ahead. To receive, turn the dial till you hear the other fellow calling you. That's all there is to it.

It isn't necessary to invest even the cost of two second-hand commercial outfits, however, for any Radio Amateur can put a couple of these little gadgets together in a few hours, at a total cost of less than ten bucks, and they will do the job perfectly.

Just imagine the difference on your range. You take the two Transceivers along to the range, with your other equipment. There are no wires to string, and none for the kids to make a mess of if you tried to have them permanently installed. You can set one Transceiver up in a nice shady spot where you can be comfortable—the other goes down to the target pit. When you're ready, go ahead and tell the pit what to do. That's all there is to it. And if it isn't the last word in convenience, and the most satisfactory method of communication for a rifle range, I pass.

Down on Cape Cod, my friend M. J. Patterson—one of the most enthusiastic small-arms experimenters I've known since Doctor Mann—has a private range permitting rest shooting at all distances up to and including 300 yards. To make things easy he built a road the whole length so he can drive his car to each target. The only thing lacking was a means of telling the chap firing, exactly—not approximately—where each of his shots went. Even extra-fine scopes didn't do the job perfectly. The little Five Meter Radio outfits were the answer. With them the chap at the target can tell the shooter exactly where each shot struck, so it can be plotted perfectly on the score sheet at the firing point. If there is any more complete range than that of

Friend Patterson, I've never seen it. That radio addition makes it perfect.

There is also another use for this latest development in short-wave radio, that should appeal to rifle clubs and in fact to any shooting outfit, and that is to establish communication between the central office and different ranges during a shoot. In fact, all you need to do to make your club perfect, so far as the communication part of it goes, is to put the Five Meter Radio to work.

IMPROVING YOUR SCORE

(Continued from page 28)

bodily contact about to take place, or the shock of catching the ball, but a shooter defeats everything if he tenses his muscles in preparation for the shock of recoil. He must be completely relaxed. Any tightening of muscles from shot to shot, or just prior to letting off a shot, upsets all previous practice, no matter how conscientiously that practice has been carried out.

The man who expects to compete in tournaments, and hopes that as time goes on the gods of good fortune will smile his way a reasonable number of times, should remember one thing about practice shooting: *practice at home* and not at the tournament, even though you do arrive several days prior to the matches. More matches have been lost because a competitor was "all shot out" than ever were lost because of too little shooting on the range where the tournament was to be held. If you haven't learned to do it right in the months (or years) you've been practicing, how can you expect to learn it two days before tournament time?

Any well-known shot who practices just prior to a tournament, is foolish indeed. He is only building up "pressure" on himself, because when the matches start he will try to live up to his practice scores, knowing that many watched his preliminary work-out. If he fails to go well right at the start, he begins to "press," and—nine times out of ten—he grows steadily worse, and winds up the day far below where he should have placed. It's all a mental hazard, but so is the water hole that the golfer dislikes so heartily.

I do not mean that I think it wise to try tournament shooting on a strange range without firing a few *sighting* shots, if it is possible to do so. If you have the opportunity, sight your gun in, shoot a string of timed and another of rapid to become accustomed to the way the targets move, but don't prolong your practice until people are talking about how "hot" you are going. The less attention your shooting attracts during practice strings, the better off you will be on tournament day. When you feel your sights are right, stop shooting until tournament time. Rest will be of a great deal more help to you than anything else. Team captains should follow this same system.

THE END

THERE IS A LIMIT

(Continued from page 22)

now, that after you have killed your own game you *stop hunting!* In other words, every man kills his own game. I have known of a party of four or five to go home "full up"—and one man in the party shot all the deer! Just what kind of cast-iron conscience do these fellows have, anyway?

The average person, about 110 per cent in some states, seems to feel that because he buys a big-game license he is

entitled to a deer, no matter how he gets it. But he isn't at all. He is entitled to *hunt*—to take a deer if he can do so by his own skill, and not otherwise.

It takes a real man to drive an automobile and act like a gentleman, and it takes a real *be-man* to conduct himself in the game field like a true sportsman. If you go hunting merely to kill, to get the limit, to fill your license, you are no sportsman, but just a potential butcher and an enemy of conservation. You should spend the deer season sticking hogs in a packing plant—where there is no "limit."

Your and my chosen sport is at stake. It is up to every one of us to play square. It is the *duty* of each of us to buy a hunting license. It is up to you and me to maintain an active membership in at least one national conservation organization, and to be men and act like men, and not like cheap, low-brow killers and despilers. In short, it is up to us to be clean, honorable sportsmen, and take our sport for the real good we can get from it, and not for the bag limit.

TEACHING A SMALL BOY

(Continued from page 32)

did not seat cartridges snugly into the chamber and burst cases resulted, causing an annoying, and not to say dangerous, burst of burnt powder in the face of the shooter at every discharge. Love's labor lost, the gun had to be abandoned, but is likewise being preserved as a souvenir.

However, the gun had served its purpose in preparing the shooter for the conventional sights. He having gained some height and strength, not to mention progress in shooting, the time had arrived to provide the marksman with a heavier and still more accurate gun. And incidentally, the interchangeable apertures on the Lyman 17A front sight on a Winchester 52 struck the young shooter's fancy, and to him was something of a plaything which he insisted upon having on his own gun. A Winchester Model 60A equipped with Lyman 17A front sight and a 55W rear sight was chosen as the gun most nearly meeting the requirements. The stock, however, had to be discarded. Instead of merely remodeling the factory-made stock as had been done previously, a new stock was shaped from a blank, embracing elements found to be desirable in the experience gleaned from experimentation with the earlier guns. After much measuring and more guessing the largest of the three rifles shown was turned out. A high comb, full pistol grip, ample cheek piece to permit subsequent modification, and semi-beavertail fore-end, are important features in design. Plenty of difficulty was experienced around the pistol grip in attempting to combine both utility and beauty. The gun is a trifle barrel-heavy, which is evident from a study of the photograph, but it is not excessive with this slender barrel. According to the original plan, six inches of barrel was to be removed. However, the slot in the fore-end through which a small cross strap is inserted, compensates for a short arm and the extra barrel weight. This cross strap will be removed as the shooter increases in stature. A shorter barrel would make a more attractive job, however. The over-all length of this gun is 36 3/4"; weight, four pounds. With this gun the shooter qualified as a Sharpshooter at the age of five years, and now at the age of six is working on his possible 500 bars.

All this to give expression to the experiences of one dad who gets a kick out of helping his son get a kick out of shooting.

OVER THE NEWS DESK

Annual Meeting

Club Secretaries Urged to Attend Dates Set for February 3 and 4

The annual Meeting of the Board of Directors of the National Rifle Association, to be held February 3 and 4 at the Mayflower Hotel in Washington, will follow the precedent set last year, and include open forum discussions on topics of interest to every shooter and association member. One of the major considerations will be that of junior and senior club organization and activities. For this reason it is hoped that officials of affiliated clubs, particularly those within reasonable distance of Washington, will find it possible to attend. Some clubs are already planning on sending their officials to this meeting for the suggestions they hope to pick up in solving local club problems of membership and promotion, and wherever possible, it seems others should plan accordingly.

The discussions will be led by experienced club organizers, men who are outstanding through their accomplishments in various fields of promotion, publicity, and organization. Members of the association who are interested in other phases of N.R.A. activity, firearms legislation, police marksmanship, competitions, firearms safety, will also want to attend the meetings beginning 10 A. M. Friday morning, the 3rd. The regular business meeting of Directors and members will occupy the afternoon and then in the evening the annual dinner, at which time the topics of national defense will be discussed by a national figure, tentative arrangements for which we are scarcely able to announce at the time of going to press. Those in charge of arrangements for this dinner would like to have reservations in as early as possible, so that, if

necessary, a banquet hall large enough to take care of the expected increase in attendance can be secured.

This seems to be the opportune time to crystallize, through discussion, definite programs of shooting promotion, and enlist through the personal attendance of club secretaries, police officials and other key men of the shooting game their support of various plans for greater extension of the sport and its allied interests.

The meetings have always been important in the work and plans of the association. The attendance has been limited, however, for one reason or another, but this year it is hoped that shooters everywhere will accept the invitation of the N.R.A. staff to come and join in the discussions on subjects of interest to them all. The annual dinner, with its galaxy of big-wigs in the nation's affairs, and its congenial associations with leading men in the shooting fraternity, is reason enough to make that trip to national headquarters. Travel for tournament shooters is at the low-ebb at this time of the year, and for those other stay-at-homes, this is your one chance to meet and talk with the equally enthusiastic gun nuts. The new N.R.A. indoor range, the newly housed firearms museum, plus the observation of the intriguing political pulse of the nation's capital, are yours for the visit over this big week-end. The invitation from N.R.A. headquarters is a cordial one, and it is hoped that our many members and friends will accept it and set aside the first week-end in February for that long-planned-for trip to Washington.

The National Rifle Association gets a new home. After the middle of January this building, 1600 Rhode Island Avenue, facing Washington's familiar Scott Circle, will house all of the varied activities of the association.



TIMED FIRE with Bill Shadel

Well, we're off again. "Big Tim" Sullivan's law of 1911, passed by the New York Legislature after Timothy D. had become tired of the gang shooting down in his lower East Side district, has rung up another absurdity ad nauseum. We quote the Daily News, "A school teacher who found her mother a suicide by gas and removed her distraught father's gun when he threatened to follow his mate in death, was arrested as she was about to turn the gun over to police. She was later fingerprinted twice and held in a cell for four hours. Mrs. Gladys Holzinger said she had been torn from her dead mother's side and whisked away in a police radio car despite her repeated explanations that all she was trying to do was save her father from self-destruction." Her experience was strikingly similar to that of a woman who found a pistol in a bus six months ago and was jailed all night when she took the weapon to the nearest police station. The Herald Tribune editorial comments thusly: "In all common sense there was no reason to charge her with owning, possessing or carrying a concealed deadly weapon. She had merely picked it up and handed it to a policeman, who, acting on orders from his lieutenant that 'somebody must be brought in', arrested her." But common sense is a far cry to the workings of that infamous statute. Mrs. Holzinger was taken to the Flushing Station, where she was booked and fingerprinted. Then, because that station has no detention pen for women, she was removed to the Jamaica Precinct—where she had to submit to the indignity of fingerprinting all over again—and was thrust in a cell. Her friends learning of her plight finally arranged for the \$1,000 bail and at 11:00 P.M.—eight hours after she discovered her mother dead—she was released to go back to her distraught father that so much needed her in that dark hour.

* * *

A new range for national headquarters—that's the story to be told in a later issue. Meanwhile the well lighted, commodious eleven point range is being outfitted for a grand opening the middle of January. Local clubs, juniors, high schools and colleges, police and NRA Staff men are going to have all the opportunity they want to shoot this winter. It will be an experimental range in every sense of the word. Experimental for testing range fixtures and guns, and experimental in operation. Reports from time to time will be made for the benefit of any like projects that may be planned by some of our clubs.

* * *

We've mentioned those Munhall, Pa., High School juniors before, but as we go to press we notice they have fired their third match in the Fall warm up series of bi-weekly matches without dropping a point. That's a 1500 possible, and not bad shootin' in any class. These juniors have won the national title two successive years now and it looks like they are on their way toward a third. 175 teams are firing in the first series. The second series for the national title will find over 200 teams entered.

* * *

The United Airlines Club of Cheyenne, Wyoming and the Mason City (Iowa) Cerro Gordo Club really mean business in the inter-club postal series this winter. They have each entered fourteen teams for what must be some kind of a record. Entries to date indicate well over four hundred teams will go under the wire January 1.

BULLET HOLES ARE NOT FIRST CLASS MAIL

From a recent issue of the *Curtis Courier*, Reader R. J. Mason of Lisbon, Ohio, sends us the following, which should be of interest to you postal target punchers:

"Our lynx-eyed Milwaukee Salesman, Curtis W. Husher, ran across an article in the *Milwaukee Journal* which informs us that bullet holes are not first-class mail. The question came up when the postmaster had submitted to him a number of rifle club score cards more or less neatly perforated by the straight shooting of the members of the Independence rifle club, who wanted them mailed. He couldn't decide whether the envelopes containing the cards should carry first-class postage.

"The question was put up to Postmaster John A. Fleissner at Milwaukee, and he passed the buck to the department at Washington.

"Of course, first-class mail contains a personal message. The postmaster looked at a score card and it told him a very personal message—for instance, that neighbor Bill had a perfect score, that neighbor John couldn't hit the side of a barn, and other details of accuracy of aim and keenness of eye.

"But the department ruled that perforated score cards were not first-class mail. However, if the owner totals up his score, based on the number of points, the hand-writing makes them first-class mail."

So, when you mail postal match targets to the association offices, don't write on them, and send the certificate, along with any other written message, separately, so that you will not be charged full first class rate for the heavy targets.

CHANGE AT HARRINGTON & RICHARDSON

We are informed that following the unfortunate death of Mr. John W. Harrington, there has been a complete change of management in the Harrington and Richardson plant. Mr. E. C. Harrington is no longer taking an active part in the management of the Company, and Mr. Walter F. Roper, who was primarily responsible for the development of the H. & R. line of target revolvers and special grips, has also severed his connections with the H. & R. organization.



Thought you'd be interested in seeing what one city did to encourage safety in the hunting fields. The Dayton Rifle Club and the "Dayton Journal" got together and these "horrible examples" of carelessness were published as a warning to Ohioans in an effort to cut down the accidents that come with every hunting season. They can be prevented, and this is the type of publicity that will go farthest toward gaining that end.

CLUB SUGGESTIONS

Once before, club suggestions were devoted to the virtues of the industrial rifle league. Since then, a number have been organized, and are proving of prime importance as means of creating widespread interest in shooting among the average citizenry of their localities. This time, the emphasis is on the task, and difficult task it often is, of arousing interest in the game, and further, of ways and means of keeping alive this awakened interest long enough that the newcomer can orient himself to serious competition before the apparent skill of the "hot shots" scares him out. As an example, we can point to the way the problem was handled by the—

INDUSTRIAL RIFLE LEAGUE OF TOPEKA

An oft-repeated incident on almost any indoor rifle range, anywhere: Club members on the firing line, shooting intently, concerned only with the match of the moment. Unnoticed, a timid soul sneaks quietly through the gallery door, takes a seat. He is all eyes, and an envious look comes over his face. He is a shooter, of sorts, that is. He owns a rifle, a light field gun, and takes it on camping trips in the summer, occasionally plinks on an improvised range on Sundays. But he is a stranger to the target range, perhaps has never shot at a target in his life. Even so, the germ of the shooting bug is there, as evidenced by the fact that the sign over the range door, or perhaps the scores of last week's club shoot in the local paper served to draw him to the range.

Club members are always friendly to visitors, so one of the crowd approaches him, introduces himself and some of the other club shooters standing nearby. "Like to shoot?", one of them asks. "Well, . . . er . . . yes, that is . . . er . . . I never saw anything just like this before. Thought I'd just look on tonight. But, say, on the level, I sure do enjoy shooting." We let him try a few shots. But he looks the expensive equipment over, silently figures what it must cost to shoot small bore, sees some of the almost impossibilities that have been shot, and before long, satisfied that this target game is a rich man's hobby, and one only for "experts", sneaks out of the door and probably will never show up again.

This will happen not once or twice, but any number of times during a season. A new man will slip in with a light, inexpensive field gun, a gun that has given him much satisfaction on rabbits, tin cans, one that he is satisfied with under those conditions, but after firing at the tiny bull of a regulation 50-foot target, dis-

(Continued on page 43)



GUN ACCIDENTS

(Continued from page 29)

year, all of them only minor affairs. One was due to defective equipment, and caused slight powder burns. Another was the result of an experiment.—In trying to pierce a $\frac{1}{2}$ -inch steel plate, a ricochet caused a minor cut in leg. Still another was due to a ricochet from a bullet which got away from a beginner, causing a slight scratch. And so on. In the report covering the history of the club, some of which go back twenty-five, yes, even sixty-five years, twenty-three accidents have been reported, all except one similar in nature to those reported for this year. Only one fatality was listed out of the 800 clubs reporting. One questionnaire stated: "One of our members shot a bank robber, but that wasn't an accident—just damn good shooting."

N. R. A. club members are also safe hunting companions, according to the reports to date, for only three of the accidents reported occurred while these experienced hands were in the hunting field. While it is too early to base any conclusions on these reports, yet this early summary shows the trend in our safety record.

The facts of this article present no new theories of accident elimination or prevention. Rifleman readers need but incidental reminders of the essentials of gun safety, or comments thereupon. This "paste-pot-and-scissors" effort has merely been presented in the hope that it might furnish fuel for your argument for properly and safely handled guns, versus accidents.

Safety Code

Here are the rules for safety referred to by Bill Shadel in his story, "Gun Accidents," which begins on page 29. As part of a national publicity release sent out by the N.R.A., in an effort to make the public more conscious of the fact that nearly all of the mishaps of the gunning season are easily preventable, the list went to about 5,000 newspapers, giving nationwide coverage to the message. We can hope that the reception accorded the item by the press of the country played its part in making the 1938-39 hunting season one marked by fewer of the incidents that annually leave a trail of injured or dead sportsmen as an evidence of the danger of firearms carelessly handled. Guns can be safe—why not keep them that way?

1. Treat every gun with the respect due a loaded gun. This is the cardinal rule of gun safety.

2. Carry only empty guns, taken down or with the action open, into your automobile, camp and home. Do not load your gun until you are actually in the field and hunting—unless it the moment you leave.

3. Always be sure that the barrel and action are clear of obstructions. In heavy brush or snow open the action and glance through the barrel occasionally.

4. Always carry your gun so that you can control the direction of the muzzle even if you stumble. Keep a firm grip on the small of the stock—you wouldn't merely balance a stick of dynamite on your shoulder.

5. Always be sure of your target. If you can't be sure, don't shoot.

6. Never point a gun at anything you do not want to shoot. Keep the muzzle of the gun pointing away from any part of your own body and from any other person, especially when loading, unloading, taking off the safety or working the action.

7. Never leave your gun unattended for a moment, unless you unload it first.

8. Never climb a tree or a fence with a loaded gun. Put your gun through or over the fence, then pick it up from the other side.

9. Never shoot at a flat, hard surface or the surface of the water. Ricochets travel in unforeseen directions.

10. Gunpowder and alcohol mix into a deadly potion. If men have to have liquor while in the hunting field, keep them away from the guns. Injured feelings are easier to repair than injured bodies.

BRIDGEPORT, CONN., JAN., 1939

Rifle

MANY OUTSTANDING MATCHES WON WITH MODEL 37 IN 1938

Took 53 places at Camp Perry, including six firsts and eight seconds

BRIDGEPORT, Conn.—As more and more Model 37 Range-master rifles get into shooters' hands, the tide of victories made with it rises higher and higher.

The splendid performance of the Model 37 at Camp Perry this year had all the boys talking. Six first places were won with Model 37's, eight seconds, five thirds, two fourths, seven fifth places, six sixth places, two seventh places, five eighth places, three ninth places and nine tenths—a grand total of 53 places!

Wins Many Friends Among Experts

All through the year, and in virtually every part of the country, the Model 37 was winning matches

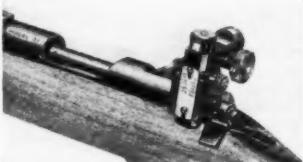


Heat treated working parts throughout. Velvet-smooth action. Easily adjustable trigger pull.

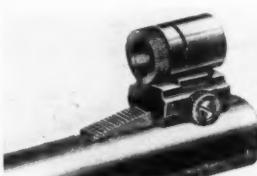
way out of proportion to the number used.

And this fine record of wins is resulting in a rapid increase in the number of leading shooters using the Model 37.

If you haven't tried the Model 37 yourself, make a resolution now to try one out this year. Then you'll know what all the shouting's about!



Notice how many iron sight matches are won with this new Remington micrometer sight with $\frac{1}{4}$ -minute click mounts.



Iron Sights at telescope's height eliminate the need for check piece. Rifle fits better—aims easier.



The Model 37 "Rangemaster" Can't be beat for smooth action, close grouping, winning scores. It's complete—no extras to buy.

MORE SHOOTERS EARN 10X AND 400 BRASSARDS

20X POSSIBLE WITH M37

Dick Burkhardt of Redondo Beach, Cal., made this 20x at 30 yards, iron sights, in a California team match.



10X WITH "HI-SKOR"

J. F. Boehm made this neat 10x at 100 yards. A sample of his son Billy's work is on the opposite page.



MODEL 37 & "KLEANBORE"

Made at 50 yards with iron sights by J. J. Duncan of the Tippecanoe Rifle Club of Lafayette, Ind.



MADE IN COMPETITION

Clarence Rutbell of Endwell, N. Y., made this, the only 10x made during the Elmira Tournament, with Palma Kleanbore.



MODEL 37 AND "HI-SKOR"

C. F. Blackmer of Los Angeles turned in this 10x at 100 yards during a club competition.



2 BRASSARDS FOR KATES

Jack Kates of Lexington, Ky., recently knocked out a 400. Now he comes along with a neat 10x at 100 yards, made with Hi-Skor.



DEZERT GETS BRASSARD

Leon Dezert of Pasadena, Cal., made this 10x in a club match with Palma Match ammunition.



400 WITH M37 AND "PALMA KLEANBORE"

D. D. DeMay of Jackson, Michigan, recently scored 400 over the Dewar Course, and gets a brassard for his shooting coat.



ALLEN STARS AT ELMIRA SHOOT



Takes 3 firsts—1 second

"Palma Match" shooters win every event

ELMIRA, N. Y.—Gregory Allen of this city took top honors at the annual Southern Tier Small Bore Tournament here, scoring 1567 x 1600 in the Grand Aggregate.

Allen, shooting Palma Match, outranked Jack Hause and J. N. Patterson to win the 50-yard Any Sights. All three scored 336 x 400 on the Expert Target.

Allen also took the 100-yard Iron Sights event with 396 x 400.

The Iron Sight Dewar was won by B. G. Dwyer of Binghamton, with 399 x 400. Allen placed second.

Harry Chappell of Elmira took the Any Sights Dewar with 400 x 400 and 32X's—beating C. H. Kline by 6X's.

Binghamton Club Wins

The 5-man team match was won by the Binghamton Rifle Club with 1993 x 2000, with 4 of the 5 team members shooting Palma Match.

Out of a total of 15 individual places in 5 events, Palma Match took 11, and Palma Kleanbore 3!

FOLGER WINS TWO AGGREGATES WITH M37 & "PALMA KLEANBORE"



CINCINNATI, O.—Theodore Folger of this city recently acquired a Model 37 and some Palma Kleanbore. Then he went out to the Wilmo Rifle Club Matches and took the Grand Aggregate. The following week he went to Chillicothe for the Mead Athletic Club Matches and again won the Grand Aggregate.

POSSIBLES and IMPOSSIBLES

by FRANK J. KAHR



The small-bore shooters in the States will be interested in knowing that small-bore rifle shooting in the Hawaiian Islands is growing rapidly. Hawaii Territorial Rifle Association affiliated with the National Rifle Association and is very active. Stephenson is the Secretary and the interest and experience that registered tournaments will be sored by the Association during as well as scattered open matches sored by various local clubs all with the Association.

In Hawaii they have shot weather the year round, with a temperature of 72 degrees. The is fairly consistent being all-year winds, and a few showers now then only give a little more zest to the game. They had some very fine for the Annual Matches held in member which would be the best shooters in the States.

In digging through a large pile gets received from enthusiastic bulls known as Palma Match, Kleanbore and Kleanbore Hi-Score across some sent in by T. Lee last October comprising 400 on Dewar Course with iron sights. Palma Kleanbore. Lee was using Model 37 Remington-Lee who really the Rangemaster except he had his own notions about the barrel he wanted. He says it is a shooting arm he has ever had.

Besides winning the match to a few weeks later he won with 200 at 50 meters, then a 100 at 50 yards, and then a week later won again with 400 and then with Iron Sight with 200 at 100 yards. October 1st he won it again when

Among my souvenirs I found recently that someone gave me a Camp Perry to the effect that Bond of New Philadelphia, Ohio, really needs no introduction, was first man to make 400 on the Team; first to make 400 on the Team; and the first man to make in the 50-Meter Iron Sight Match. It was also stated that only four have been made in the 50-Meter Sight Match.

Well, our old friend, Robert A. of Ashland, Kentucky, recently four out of five matches with a Model 37 and some Palma Kleanbore. Here is the record: 50 yards; 199 at 100 yards; 199 with the Dewar also gave him the Aggregate with 596 x 600. He held his 50-yard match to a chap who but only 5X's, while Kates had with his 199.

LAFFERTY SCORES 700x700 TO WIN ILLINOIS CHAMPIONSHIP



Robert J. Lafferty of Aurora, Ill., won the Illinois Small-bore Championship with the amazing score of 700 x 700.

BILLY BOEHM, SEVEN, LOOKS LIKE FUTURE CHAMP



Billy Boehm, 7-year-old sharpshooter of Alton, Ill.

50-SHOT POSSIBLE WITH "PALMA MATCH"

LOUISVILLE, Ky.—Al Upton of this city recently poured 50 Palma Match bullets into this target at 100 yards during a practice session. The result—a 500 with 41X's... which takes holding by the shooter and grouping by the ammunition.

Alton, Illinois, youngster shoots exceptional target

ALTON, Ill.—Here's a truly remarkable 10-shot group made at 50 feet by 7-year-old Billy Boehm, son of J. F. Boehm of this city. Billy shoots a Remington Model

33 rifle which his father rebuilt to fit him.

When he was only 6 years old, Billy was averaging 81 out of 100 at 50 yards. He's a Junior member of the N. R. A., and holds Sharpshooter awards.

Billy's Dad can lay them in the X-ring, too—witness the beautiful 10X possible elsewhere in this ad, which he made with Hi-Skor.

RAFFERTY MAKES 5/8-IN. GROUP WITH "KLEANBORE"

Here's a beautiful 10-shot group made at 100 yards by Gerard Rafferty of Highland Park, Mich., with Palma Kleanbore. The group is just $\frac{5}{8}$ " across, measured from the outside.



SHOOTS "PALMA KLEANBORE" . . . GOES CLEAN AT ALL 4 STAGES WITH 10X POSSIBLE AT 200 YARDS!

WON NAT'L JUNIOR TITLE AT PERRY

Don Wilson, shooting Model 37, is close second with 698 x 700

FORT SHERIDAN, Ill.—Shooting in the Illinois State Rifle Association Championship Matches here, Robert J. Lafferty, of Aurora, turned in one of the most remarkable exhibitions of marksmanship ever seen.

Shooting Palma Kleanbore ammunition, Lafferty hung up a 200 x 200 at 50 yards, another at 50 meters, a third at 100 yards, and wound up with a hair-raising 100 x 100 with 10X's at 200 yards! Total score—700 x 700—and that's real shooting any time or any place.

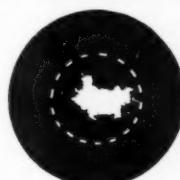
Lafferty won the National Junior Championship at Camp Perry this year, shooting Kleanbore. We said then he was going places . . . looks as if he's arrived.

Don Wilson of Chicago, shooting a Model 37, gave Lafferty a close race. He scored possibles at 50 yards and 50 meters, 199 x 200 at 100 yards, and 99 x 100 at 200 yards for a total of 698 x 700.

Pierce Places Third

E. H. Pierce, of Chicago, finished

THE TARGET OF THE MONTH



One of the finest 10X's we've seen. Made at 100 yards by Raymond A. Tweedie of Pittsfield, Maine, with Palma Match. Notice how well the group is centered. Not one shot touches the x-line.

Send in your hot targets to Frank Kahrs, Remington Arms Co., Inc., Bridgeport, Conn.

third with 696 x 700. He used Palma Kleanbore.

There were 86 entries in the match, including some of the biggest names in the small-bore game. It was beautiful shooting weather, mild and bright, with little wind.

RIDINGS WINS HIGH INDIVIDUAL



Scores 995x1000 with Palma Kleanbore in Cal. Match

VISALIA, Cal.—In the recent team match here between 10-man teams from the five sections of the state (won by the Southern team), William Ridings of Hawthorne led the list of individual performers.

Ridings won the Wimbledon (200 yards) with 198 x 200, placed second in the Iron Sight Dewar with 399 x 400 and fifth in the Any Sight Dewar with 398 x 400. His aggregate—995 x 1000. Mr. Ridings stated that he has found Palma Kleanbore tops as a wind buster.

—so they tell us:

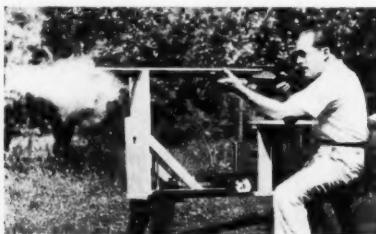
MUZZLE LOADER

SIRS:

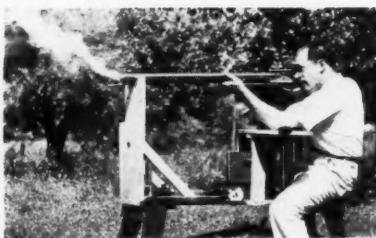
I am enclosing two photographs showing the shooting of a .44 caliber 25 pound match rifle. I thought they would prove of interest as they were caught at the instant of, and just after, firing.

Warwick, New York

ROY VAIL.



Instant of firing



A Second Later

• Near the lower edge of the pictures a white cardboard disk is visible. In it or cutting its edge are ten shots fired at 200 yards, amply demonstrating the accuracy of the rifles of nearly a century ago.—ED.

"DEAR TANANA"

SIRS:

In the November issue of the *Rifleman* I noticed a letter from a hombre who calls himself Tanana. I never take time for such letters, but I couldn't resist the temptation to answer this one. You may either forward the letter to him or publish it in the magazine where he can read it. Suit yourself. When you've read my letter, you'll understand why I haven't signed my name.

(The American *Rifleman* elects to publish the following, which from the reader's standpoint is most interesting of all of those received in response to Tanana's letter. Others varied from one of criticism over our having used the letter at all to an offer of new barrel for Tanana's "old Stevens" from one of the finest barrel-makers in the country. Of value to Tanana will be the promise of the editor of a prominent outdoor magazine to consider anything he may write; another, from a literary agent in New York, also following our suggestion that Tanana turn author, offers help in preparing and placing manuscripts. All of the suggestions are helpful, constructive. The Association is grateful to its members for thus coming to the aid of a fellow shooter.—ED.)

Dear Tanana:

I've just read your letter in my last number of the "Rifleman" and I was plumb surprised at you. Man, I was teetotally flabbergasted. I was even "orrified. Pull yourself together, Tanana, and get a grip on yourself. Get mad an' fight. Better still, grin—an' keep grinnin'. Feller, you ain't been nowhere, an' you ain't seen nothin' yet. I know.

As the editor of the *Rifleman* tells you, you can write. I know that, too. I am a writer, and I could spot the earmark of a craftsman in your letter. You doubtless know me, and so will most of the *Rifleman*'s host of readers. But I ain't goin' to tell you my name. Nope, not here. You see, Tanana, I am a writer of those wild an' wooly western stories, an' there might be somebody who would bat their eyes an' stiffen up if they knew that their favorite author was doin' his stuff while lying flat on his back in bed. Yep, Tanana, believe it or not, in bed.

From your letter, you are still able to stand up on your hind legs. That's somethin'. And you can do gunsmithing and other work. Heck, boy, you've still got the world by the tail and a down hill pull. Grin and stick your chin out. Don't feel sorry for yourself; feel sorry for the other fellow—and keep driving. You ain't licked.

Tanana, I came West thirty years ago, and doctors in Kentucky swore-an'-be-darned that I had just six months to live. I lit in New Mexico with one lonesome five-dollar bill in my pocket, on my own resources, and a stranger in a strange land. I couldn't do a day's work, but I did what I could. As I gained strength, I went to work on a ranch. I've been a cowboy for years and years. Instead of dying, I became husky enough to pass the army examination for Heavy Artillery during the World War. Shortly after the war, I got smashed up by a bad horse on the ranch, and they put me to bed with a solemn promise of not more than thirty days to live. But while I lay in bed daring St. Peter to sound taps over me, I started writing western stories to kill time. That is, partly to kill time, and partly in an effort to support a wife and three little tads who still looked to "Pop" for support.

But I'll cut this short, Tanana. I was in bed about a year that trip, and when the disgusted doctors let me up, I was selling my stories right and left. My three kids have all been to college on "Pop's" writing since then, Tanana, and they've never gone hungry, and they're all now able to stand on their own feet and look the world square in the face. It's still a good old world, Tanana, and its people are the friendliest and finest that you ever saw—if you'll just let them be. They won't laugh at you, boy. Just grin and they'll laugh with you—no matter what kind of a gun you shoot, or how you dress while you shoot it.

A little over a year ago, they got me down again, Tanana. This time, it was my back. Two joints of my lumbar vertebrae have gone partly A.W.O.L. I lay in bed until January, then they lugged me to the train on a stretcher and hauled me to a hospital in Kansas City where a steel brace was made for my back. Even with this brace, I am supposed to stay in bed most of my time to let my spine properly heal. I am getting up and around some now, but not long at a time. I couldn't afford to stop writing, so I had a table made that fits right across my stomach and tilts up in the back. I have a light portable typewriter that I set on this, and I can keep my old "fiction mill" going full blast while lying flat on my back.

Like you, I am a dyed-in-the-wool gun crank, Tanana. I love a gun, and they've been my constant companions since I was a boy. I was once able to make a good average on flying targets with both rifle and six-shooter. I could break marbles in the air with a .22 rifle. My doctors said that I would never be able to shoot a shotgun or high-powered rifle again on account of my back, but I have already fooled them there. A few days ago, I buckled this steel brace up tight and got out and beat my son at a target with a .30-30 Winchester carbine. That means that I am going to shoot again. I may not be able to get out after deer and bear as I once did, but I can still have a big time at target shooting. I've already got my head set on a good bolt-action carbine in 7mm calibre, with Mannlicher type of stock. A

7mm won't kick me quite as hard as a .30-06 or .30-40, and a .30-30 is just a little light to suit me. But this last spell in bed has slowed me up and made a crimp in my finances. I won't be able to afford the kind of gun I want for a while, but I will—and it won't be long until I do. I may even go deer hunting again, Tanana. They say I won't, but they don't know me. Just remember this, Tanana, you can't lick a guy that absolutely refuses to quit.

So stick out your chest, Tanana. Get your head up. If you'll just make up your mind to have the things you want, they're already as good as yours. Keep driving. Never back up a step for anything—unless you are backing up for another running start ahead. Hit the line with everything you've got an' watch it give. Good luck and best regards. Carrizozo, New Mexico "A GUN BUG".

WARNE, PRO AND CON

SIRS:

I have been a reader of the *Rifleman* for quite a number of years but, until seeing Mr. Warne's letter in the December issue, have never taken the pains to write you, as I should have long ago, to say how much I look forward to the monthly appearance of your fine publication.

Within a few hours of its arrival each month, I read it practically from cover to cover and get much valuable information and much pleasure out of it. Typographically and from an editorial standpoint, it is a very excellent production and a great credit not only to the staff members who produce it but to the National Rifle Association as well.

Hartford, Connecticut GEORGE B. ARMSTED, Managing Editor, *The Hartford Courant*.

SIRS:

First of all, in reply to the letter "We Can Take It", I would advise Mr. Warne to give his vocabulary a Lysol bath.

New York, N. Y. "A RIFLEMAN FAN."

SIRS:

You state that Mr. Warne wants a good five-cent mag, but it is more likely that he is wondering if yours is worth all of fifteen.

New Britain, Connecticut JOHN S. PARSONS.

SIRS:

May I suggest that critic Warne take the five dollars that he so graciously offers as payment for the services of a journalist and purchase a book of pictures, some classic of literature and a good book of history—which collection, it appears, should fill his requirements.

St. Bonaventure, New York BILL DAVIS.

SIRS:

I wish to take exception to a statement made by your correspondent, Peter Warne, in the December issue.

Mr. Warne says: "The person who sold you on the new cover ought to be shot." This would be a gross example of misdirected effort; it is you who ought to be shot for having had any part in foisting this thing upon us. I hope you will point out this mistake to Mr. Warne. Meredith, New Hampshire CLARENCE LYLE.

NEW ZEALAND COMMENT

SIRS:

Some time back, I wrote you in criticism of your publication and you were courteous enough to reply to a not altogether courteous criticism.

The foregoing is only a preamble to identify myself to you and to revive an interest that you may have forgotten. The real purpose in writing you is to heartily congratulate you on the improvement in THE AMERICAN RIFLEMAN as I feel it is due for me to express my pleasure at your efforts after my gratuitous picking in my earlier letter. There have been many articles during the last twelve months that I have read with real pleasure and the later issues are richer than ever. I especially want to refer to the articles on the Colt .22 adaptor to the Service .45 Automatic pistol, the .32 foreign automatic

pistols, and above all on the new Garand .30 caliber Automatic Service rifle. These great articles are something of interest to the shooter in things of tomorrow and not a rehash on antiques.

I again implore you to give us stuff on the latest developments and the probabilities of tomorrow, and while doing it, lift your head sufficiently to see over your own domestic advertisers and give us the latest world developments in the rifle and pistol and accessories pertaining to these.

J. NORRIS.

County Office, Whangarei, New Zealand.

DOUBLE ACTION

SIRS:

I was greatly interested in the article on double action revolver shooting in the October Rifleman, even though I was a trifle disappointed that I didn't get there first. I have had a great deal of pleasure out of DA shooting, having practiced it since about 1910. I have written a little on the subject, and had some dope prepared which I had intended submitting to you some day. However, the author of that article certainly covered the subject well.

I cannot point to any record I ever made as being a proof of double action superiority, but this has been mainly because in late years I haven't consistently followed it up. In 1930, when firing the Langrish match, I was told by a bystander that I was the only one in the lineup he saw actually using DA, although this was supposed to have been a DA match. As I remember, I made five hits out of a possible six, and got them all off comfortably in about three or four seconds. There have been a few other matches in which I have used DA to good advantage. I have, I believe, something over one hundred medals, which isn't so hot, of course, until you stop and think that all the quick fire was done DA. Back around 1928 to 1932 I was really hot, and it was simply because I got out and fired DA all the time, using two or three hundred rounds a week, as well as a lot of dry DA work.

Here's an argument: I believe almost every authority (?) on handgun shooting, when mentioning police shooting, earnestly advises the humble copper never to shoot DA when pursuing the nimble holder-upper, or what not. BUT, DAMMIT, THEY DO! I have talked to numerous ones who have had occasion to snap a quick shot, and they all fired DA; that is, when they could remember what they fired at all. Now why shouldn't the police be trained in DA? Goodness knows the parts are there. Messrs. Smith, Wesson, and Colt, all place that DA mechanism in even their best target monstrosities, even when they must know that a good target gun would never be carried for service use.

When our new police range is completed and we are ready to fire competitive matches with various peace officers, we will have such a DA match included in the program. The boys really WANT it. I don't mean that our present batch of experts would want it. There is plenty reason to believe that they wouldn't, but I'll bet you a nickel against the hole in a doughnut that such a match, sponsored by the N.R.A., would, in a very few years, become one of the most interesting, and certainly the most valuable match on the list.

Saginaw, Mich. JOHN D. LEPPERT.

• Double action revolver shooting undoubtedly has its place in the competitive handgun lineup, both as a training measure and as a means of guarding against having too many matches over the same or similar courses of fire. We would be glad to hear the reactions of the pistol shooting fraternity to such a match being made a part of the Perry schedule.—ED.

TOO MANY LAWS

SIRS:

I am opposed to any further firearms legislation because I think we have enough now for the next two thousand years, and I do not

believe in fastening any more barnacles on business in the way of keeping records and paying fees. Too much legislation has a tendency to create a disrespect for law. I have never been able to get away from the feeling that there might be some sinister motive back of this idea of universal registering of firearms. Followed in its logical course I have felt that possibly the future would see us called upon to turn in our guns, or else sign some kind of an affidavit requiring us to support some other kind of government than the one we have now, and which our patriotism would not allow us to do. In such event, if we should turn in our guns we might then be regarded with suspicion.

This seems to me to be the boldest and most direct thrust at our liberties of anything done yet, and the movement should be blocked. It might seem all right to a European dictator but we do not need it here. If the Attorney General or any one else says "Show me a man who does not want to register his gun and I will show you a man who ought not to have a gun", we can answer by saying, "Show me a patriotic man in public office who has the interest of free government and free people at heart, and I will show you a man who need not be afraid of the citizens having their guns."

Renick, Missouri ARTHUR G. DAVIS.

SEAL OF APPROVAL

SIRS:

The article "Gunsmiths" in the December issue brought to light a condition which I have noticed for some time. I would like to give you my idea of the matter from a gunsmith's viewpoint.

I would like to see conditions so that you could know where to send your job and be sure that it would return exactly as you ordered it. So that we could order a stock blank and have some idea what we might get. So that I might be able to advertise my work honestly, and as it is.

Could we have a "Good Gunsmithing Institute" so that gunsmiths able to qualify could advertise, using its stamp, with the assurance that thereby the customer might know what he would get. It would be a boon to both producer and consumer.

Charleston, West Virginia "A GUNSMITH."

• The suggestion of "Gunsmith" is one that would be welcomed by shooter and gunmaker alike. Perhaps the gunsmiths themselves could form an "Institute", set up an impartial committee to pass on the qualifications of applicants, issue seals of approval.—ED.

CIRCULATION BOOST

SIRS:

It might interest you to know that this club has decided to give a one year subscription to THE RIFLEMAN to all new members of the club. We believe this will have a decidedly good effect toward making a permanent and enthusiastic member out of the new man.

Coffeyville, Kansas. GEORGE L. HOWARD.

SHOOTING PRINTS

SIRS:

On page 39 of the December Rifleman are three pictures caricaturing shooting positions. Would it be possible to buy these in the form of larger prints, possibly in colors? I certainly would like to have a set of them.

Boston, Massachusetts CALVIN HOSMER, JR.

• The small cuts used in the December issue were taken directly from the pages of Shooting and Fishing, where the prints were originally reproduced. The series, as published by Currier and Ives, included a fourth, an Irish marksman, entitled "Highland Fling; An Irish marksman". This last, according to the bartender where the other three were discovered, "was broke and thrown away" years before. We never have had the originals. Perhaps a dealer in Currier prints could locate a set.—ED.

CLUB SUGGESTIONS

(Continued from page 39)

satisfaction would be more the word and he leaves the range, soon forgets the address.

In our hypothetical club, however: "Well, there must be some way to hang onto these fellows", says the president to the secretary. Presently two heads get together and the "Industrial Rifle League of Anytown" is organized. Let's see how it works. Contacts are made with key men at different plants to get the reaction of others toward the plan. Sure they have rifles, and like to shoot them. But, say they, "We can't compete with you fellows. You're professionals, or somethin'". So there are arguments about what is a professional, but we have an idea, and succeed in allaying their fears. Say we, "Now listen, Zeke, we won't let any of our men shoot against you and we'll give you a target that you can hit. Really, we'll help you, and you're going to like it." So notices go out, the boys at the different plants elect captains, and everybody gets ready for the test of the brain-child. And what an array of rifles show up that first night! Old, new, mostly indifferent, but the enthusiasm is there, even if good rifles are not, and our venture looks as though it will go over. Instead of hanging up the regulation 50-foot target we give each man half of a 50-yard target, something he can hit.

Well, that first night twenty-two men turn out, shoot a little, and get acquainted. The next night twenty-six men are there, the next thirty-three and so it goes. The germ spreads, a regular epidemic is on the rampage and can't be stopped. What can we do? The range is already operating four nights a week and one night is left open, just in case. Finally, it is two nights a week for the Industrial League. Presently these shooters will graduate to the seventy-five foot target which has a smaller bull and the going will be just a bit more difficult, and gradually they will be shooting on the regular official 50-foot target. We really believe we have put across what we started out to do. Let Mr. Average Shooter or beginner have a night of his own, where the boys who have been at it for years can't compete against his scores, where men whose shooting ability is on an even plane can compete among themselves.

Such an organization was founded by the Capital City Rifle Club of Topeka, Kansas. Of course it takes the co-operation of the members, and patience is the watchword. Never a derogatory remark or your shooters will be gone like the wind. After the thing gets well under way it will only take two or three of the regulars, one or two men to help on the line and a man to register the shooters and score the targets and take care of the book work in general. To keep up the enthusiasm the teams rotate in shooting against each other. They will be deadly interested and that is what we are leading up to, interest, for each of them is a potential candidate for the National Rifle Association and if we can keep the interest eventually we will get their affiliation.—LAWRENCE E. BROOKS, SR.

CONSERVATION

SIRS:

What about the man who is interested in rifle shooting from the game standpoint? I see no legislation on the automatic rifle, none on the telescope sight. I see nothing in your magazine urging conservation of game. The real sportsman hunts for the sport and not for an easier way to destroy his game. You can buy meat a damn sight cheaper than you can hunt it. If it gets to a point where we have auto rifles with scopes that can kill off game at 300 to 500 yards, the stalk and the hunt are lost. What we should do is keep the game as long as we can, not find an easier way to kill it off.

Let's get some policy such as this: Create two distinct sections in our shooting, use certain arms for certain classes of sport. I believe in improving equipment, but not at the expense of our game. The target ranges offer unlimited competition for the 'scope and auto rifle.

Beaumont, Texas

BRUDGE KYLE.

Small Bore Rankings for 1938

By JOHN SCOFIELD

Wilbur W. Miller is a small bore shooter. But friend Miller, unlike Triggs, Schweitzer, Moor, Hamby and a lot of the other hot-shots, missed a lot of registered matches. He didn't show up at St. Pete or Camp Grant, and he didn't try to take the Eastern Championship at Ritchie. As a matter of fact, Wilbur W. Miller only came to Perry for one day, when he fired two matches and then had to go home to Saginaw again. All of which should, by any normal process of reasoning, go toward proving that Wilbur W. Miller hadn't a Chinaman's chance of placing anywhere near the top of the National Small Bore Ranking list.

But, to make liars out of all of us, friend Miller and his rifle did show up at the Ohio State matches at Camp Perry in June, and then in July he shot in the Eastern Michigan Tournament. Next month he tried to take all of the first place medals at the Michigan State shoot, and finally, that day at Perry we were talking about. He showed up on a Sunday and managed to enter two events. When he quit he had 13th place in the Preliminary Dewar, having beaten exactly 542 other hopeful trigger squeezers, and 11th in the Preliminary R. W. S. Now these are the toughest, and the biggest events of the biggest, toughest shoot of them all. But, undismayed, our Mr. Wilbur W. Miller had waded through them without batting an eyelash.

Back in Washington, after the outdoor small bore season was safely wound up for the year, human frailties being what they are, a calculating machine was brought to bear on the assembled scores of some four or five hundred shooters who had fired enough matches to figure in the ranking. Among the cards was that of the aforementioned Miller. The last click of the machine ran up a total of .9544 as his season percentage. Figuring competitors faced and how many of them he had defeated, this was a pretty high figure, higher than any other, thus far. But the card was put aside with the others and the rest were added and divided in great haste, with full expectations of finding several higher averages. But the higher one never turned up. This seems to prove once and for all, that it isn't necessary to spend a small fortune traveling around the country to land on the top of the small bore heap.

The other day we wrote Wilbur Miller, asking for a little biographical data. What we received reads like a clean sweep of North-Central small bore competition. To quote in part: "Michigan Central League matches at Flint, 1938, 6 listed events, won 4; Saginaw Regional Tournament, 1937, 4 events, 3 wins and a 2nd; Michigan State Regional Tournament, Detroit, 1938, 10 events, won 8, a 2nd and a 5th. Won the Paugh Trophy, Ned Moor Trophy, Bausch and Lomb Trophy" . . . and so on down the list. Further revelations include the facts that Mr. Miller is 40, earns his living as a machinist. To "Kap" Richards goes much of the credit for Miller's skill with the small bore rifle. His philosophy of the proper way to learn to shoot is worthy of remark. "I find that I learn much by being a good listener."

In second place on the ranking list is V. J. Tiefenbrunn, St. Louis marksman, who last year placed 15th. Tiefenbrunn's performance is, in a way, comparable to Miller's. He shot in but two registered tournaments, those at St. Petersburg and the University of Chicago, firing twelve matches in all. His average is .9317, far ahead of his .844 of 1937. "Tief," now only 25, has been in the "big time" of the shooting game since 1931, when he took time out from his high school studies to attend Perry, where he won the important Crowell Match.

Lanky "Rance" Triggs, of Camel cigarettes fame, who probably attended as many miscellaneous tournaments as anyone on the list, landed in third position with a rating figure of .9032. This index rating, by the way, is arrived at by subtracting the position in each match from the total number of competitors in that event, which gives the total number of competitors defeated.

The figure resulting is divided by the number of competitors faced. Result: an indication of the true ability of the shooter throughout the season of firing, with penalties for poor showings involved in the same ratio as credit for important wins. In order to be considered for the National Ranking, a shooter must compete in at least ten registered matches during the season.

Back to our first ten: William P. Schweitzer, wealthy paper manufacturer of Hillside, New Jersey, and one of the constant threats of the small bore game, came into fourth place after leading the field in the first National Ranking, released in 1936. The jovial Bill's familiar figure at small bore meets has become so much a part of the game, and his name near the top of the bulletins so much taken for granted, that his not placing would be more of a surprise than that of finding him on top.

Close behind Schweitzer is Detroit's E. N. Moor, captain of last year's Bisley team, with four cards necessary to chronicle the sixty-eight registered events in which he fired. In top ten at least, this is the largest number of eligible matches to any one shooter's credit. "Ned" is a scientific small bore shooter in every sense of the word, carries two guns to every shoot (one for cool days, with a certain brand of ammo, another combination for the hot, dry ones), and turned in a typical Moor year by covering more ground than any other small bore fan, excepting perhaps the rambling Texan, Thurman Randle.

Good natured Charley Hamby, who hails from Atlanta, covered three important tournaments, Atlanta, Ritchie and Perry, and after a flying start at the southern shoot, where he captured three firsts and three seconds in six matches entered, went on to consistently place in the Ritchie tournament. Perry places ranged all the way from first to 153rd, as Charley, lacking confidence in his own gun, despite having himself shot possibles with it, borrowed one rifle after another during the small bore week. For the second year he ranks as sixth of the nation's small gun marksmen.

Barely X-ed out of winning the Critchfield Aggregate at Camp Perry last September, G. Paul Bomgardner, a resident of Palmyra, Pennsylvania, came into the top sector of the ranking for the first time this year, after attending four major registered shoots. Even though he finished the year with no firsts to his credit, consistency of performance gave him the high average necessary to get into high ten.

A place on the list is secure for M. R. M. Gwilliam, of Bloomfield, New Jersey, though he was another of those who didn't get to Perry. Scores in five events of the Connecticut State schedule and both of the Wilmington shoots gave him the necessary points. At the Delaware Tidewater Tournament, Gwilliam showed a fondness for third place that boosted his average far enough to get into top ten. Of the eight matches in which he fired, five bulletins found him in show position.

Of recent years, one of the most consistent tournament goers, and one seldom out of the medals, has been Pennsylvania's Bill Patriquin, who runs Ned Moor a close second through having fired in 59 registered events during the year. Out of the total, he succeeded in finishing third or better twenty-one times. Bill's performances at Vandegrift and Akron were as nearly clean sweeps of the prize schedule as it is possible to make these days.

Winding up the first ten is Frank Frohm of Wilkes Barre; the same Frank Frohm who tried to take every first place at Sea Girt—and nearly got away with it. Since 1925 Frank has been "way up on most of the bulletins, and in the last couple of years has specialized in firsts; three more shot; George Braendle, Cleveland shooter

who for a time at least, got away with winning 'scope matches with iron sights; James E. Lacy, New Haven; Edwards Brown, Alton's 50-yard specialist; Mrs. L. P. Bartlett of San Antonio, ranking woman shot of the country; and winding up top twenty, R. D. Berkheiser of Hopewell, Pennsylvania.

A separate listing of 200-yard scores finds George B. Rowell of Bell, California, nominated as the ranking long range small bore expert of the season, with Kenneth Recker, Winter Haven, Florida, and Merle Israelson of Akron in place and show positions.

THE FIRST 100 SMALL BORE SHOOTERS OF 1938

1. Wilbur W. Miller, Saginaw, Michigan	.954
2. V. J. Tiefenbrunn, St. Louis, Mo.	.931
3. R. D. Triggs, Madison, N. J.	.903
4. W. P. Schweitzer, Hillside, N. J.	.900
5. E. N. Moor, Detroit, Mich.	.881
6. Charley Hamby, Atlanta, Ga.	.878
7. G. P. Bomgardner, Palmyra, Penna.	.874
8. M. R. M. Gwilliam, Bloomfield, N. J.	.8728
9. Wm. Patriquin, Ernest, Penna.	.8726
10. Frank Frohm, Wilkes Barre, Pa.	.871
11. Harold D. Allyn, Springfield, Mass.	.868
12. Carl Frank, Rochester, Minn.	.858
13. Fred Johansen, Joliet, Ill.	.8561
14. R. C. Pope, Dallas, Texas	.8558
15. W. B. Woodring, Alton, Ill.	.854
16. Geo. Braendle, Cleveland, Ohio	.849
17. J. E. Lacy, New Haven, Conn.	.847
18. Edwards Brown, Alton, Ill.	.8446
19. Mrs. L. P. Bartlett, San Antonio, Texas	.8445
20. R. D. Berkheiser, Hopewell, Pa.	.843
21. J. C. Lippencott, Jr., Elizabeth, N. J.	.842
22. H. E. Potter, Downing, Mo.	.841
23. V. Z. Canfield, Mogadore, Ohio	.839
24. F. O. Kuhn, Jr., Stratford, Conn.	.836
25. Dave Carlson, New Haven, Conn.	.835
26. F. P. Archer, Chicago, Ill.	.832
27. E. L. Lord, Chicago, Ill.	.8319
28. Ernest Pade, Sellersville, Pa.	.830
29. W. E. Kenyon, Michigan City, Ind.	.8276
30. W. H. Shanassy, Brooklyn, N. Y.	.8275
31. C. T. Dunn, Chicago, Ill.	.8274
32. F. O. Parker, Rock Island, Ill.	.8275
33. Kenneth Recker, Winter Haven, Fla.	.8234
34. E. C. Hamley, Jr., Glendale, Calif.	.8232
35. Merle Israelson, Akron, Ohio	.823
36. E. P. Menzen, Atlanta, Ga.	.8209
37. McLeod Greathouse, Ft. Worth, Texas	.8206
38. M. R. Grosskoff, Marion, Wisc.	.812
39. Vere F. Hamer, Woodstock, Minn.	.8061
40. W. A. Sayrs, Cincinnati, Ohio	.8058
41. Dorothy Kelly, Akron, Ohio	.8051
42. G. F. Johnson, Van Meter, Iowa	.803
43. O. C. Marckman, Pasadena, Calif.	.8025
44. A. J. Yearsley, Piqua, Ohio	.8020
45. Thomas M. Lewis, St. Albans, N. Y.	.796
46. Eric Johnson, Hamden, Conn.	.794
47. Emory Hawcock, Monmouth, Ill.	.792
48. C. W. Conrad, St. Louis, Mo.	.789
49. Dr. Russell Gardner, Troy, Ohio	.787
50. W. C. Kennedy, Short Hills, N. J.	.786
51. T. J. Holm, Des Moines, Iowa	.783
52. F. Chidsey, Jr., Wayne, Pa.	.781
53. J. R. Wark, Buffalo, N. Y.	.770
54. Ray Louden, Butler, Pa.	.773
55. Alice Cole, Newton Centre, Mass.	.772
56. G. D. Blakeslee, Lewis Run, Pa.	.770
57. Lew Mason, Aurora, Ill.	.768
58. H. H. Jacobs, Dayton, Ohio	.7659
59. W. H. Oakley, Jr., Falls Church, Va.	.7657
60. L. A. Pope, Los Angeles, Calif.	.7635
61. E. O. Huff, Coshocton, Ohio	.7632
62. J. P. Whan, Burlington, Iowa	.7623
63. B. E. Putman, Wheaton, Ill.	.7621
64. S. T. Moore, West Orange, N. J.	.7618
65. Max Jensen, Cleveland, Ohio	.7617
66. Don Trowbridge, Oak Glen, Ill.	.760
67. C. A. Bickerstaff, New Kensington, Pa.	.759
68. J. J. Lacy, New Haven, Conn.	.757
69. J. R. Martin, Wichita Falls, Texas	.7569
70. E. F. Warnes, Paris, Ill.	.7568
71. F. C. Hoppe, Philadelphia, Pa.	.749
72. E. J. Doyle, New Haven, Conn.	.7489
73. Milton Klotz, Akron, Ohio	.7486
74. F. J. O'Hare, Maplewood, N. J.	.746
75. A. L. Darkow, Akron, Ohio	.746
76. G. B. Rowell, Bell, Calif.	.7454
77. J. O. Miller, Los Angeles, Calif.	.7453
78. S. E. Pipes, Monroe, La.	.743
79. D. E. Jacoby, Logan, Ohio	.7419
80. Carl Petri, Buffalo, N. Y.	.7418
81. M. S. Henning, Coraopolis, Pa.	.738
82. Bering Monroe, San Bernardino, Calif.	.7375
83. Shelby, Medford, Oregon	.7371
84. V. Moore, Dallas, Texas	.734
85. H. D. Griffith, Pittsburgh, Pa.	.728
86. C. F. Rider, New Kensington, Pa.	.728
87. R. D. Lambert, Nazareth, Pa.	.728
88. L. E. Bittner, Germansville, Pa.	.724
89. L. C. Turner, Ft. Worth, Texas	.721
90. Helen Speta, Cleveland, Ohio	.7197
91. E. H. Pierce, Chicago, Ill.	.7196
92. Wm. Brophy, Yonkers, N. Y.	.718
93. O. E. Crockett, Logansport, Ind.	.7179
94. R. C. Johnson, Plainfield, N. J.	.7177
95. Harry Frohm, Wilkes Barre, Pa.	.7155
96. W. D. Scarborough, Akron, Ohio	.7153
97. C. L. Jackson, Atlanta, Ga.	.713
98. F. P. Schimmel, Detroit, Mich.	.7122
99. R. W. Aust, Chickasha, Okla.	.7120
100. Wes Hansche, Owen, Wisc.	.711

Coming Events

NATIONAL MID-WINTER SMALL BORE MATCHES

To the oft-repeated question, from one shooter to another, "where will we be seeing each other next", the universal reply right now is—"St. Pete"! For the March "training-trip" down in that warm, friendly Florida sunshine is fast becoming one of the outstanding events of the outdoor small-bore season.

From a modest beginning in 1931, this mid-winter classic has grown into one of the country's most popular matches. And rightfully so, for the range is perfectly laid out and modern throughout, the weather is ideal at that time of year, living costs have been sharply reduced from the mid-season peak, and the program is especially designed with two definite objectives—plenty of good competition and plenty of real fun.

The customary iron-sight and any-sight matches at all ranges including 200 yards are interspersed with specialty events and novelty matches which add real spice and great hilarity to the general proceedings. For this is the home battle-ground of the famed Rebels vs. Yankees Dewar course match, the "knock-em-down-first" team match at 200-yards, the "no-sighter" 100-yard International match, etc. Just ask any of the boys who have been to St. Petersburg in previous years whether these matches aren't the real high-spots of a mighty fine program!

Word now comes from the progressive officials of the Florida State Rifle Association, who annually sponsor these matches, that additional improvements are being planned this year, for the further convenience of competitors. Among other things a new and unique numbering system on the target frames at all of the short ranges will be used for the first time this year, so as to make it virtually impossible to cross fire. Further, through the cooperation of the St. Petersburg Chamber of Commerce, arrangements have been made to throw the range open for practice for several hours each day, two full weeks prior to the opening of the regular programmed events. This is a grand opportunity to rest and loaf in the sun for two or three weeks, toughening up gradually for the 1939 outdoor season in ideal surroundings and on a beautiful range. There's plenty for the family to do—and inexpensively—while you're on the range!

For a copy of the 1939 program and complete information regarding living costs, etc. write to T. F. (Mike) Bridgland at 225 Fourth Street, North, St. Petersburg, Florida.

NIAGARA FRONTIER SMALL BORE MATCHES

A two day indoor small bore shoot, all at 100 yards, should bring .22 caliber enthusiasts flocking into Buffalo, New York over the weekend of January 21st and 22nd, when the Buffalo Revolver and Rifle Club will hold their annual Niagara Frontier event. In all, twelve matches, including two aggregates, make up the card for the two-day shoot. The tournament has been registered with the N.R.A. and the courses of fire changed from 50 to 40 shots so that scores may be considered in the National Rankings.

THE FLAMINGO PISTOL TOURNAMENT

Dates for the second annual Flamingo Open Pistol Tournament to be held at Miami, Florida are now definitely set as March 7-11. The matches to be held this year on the attractive Palmetto Pistol Club range are under the sponsorship of the Florida East Coast Pistol League. A. T. Kelly, Jr., Box 43, Coral Gables, tournament manager, informs us that the rather for-

midable five day schedule—in view of the National Midwinters immediately following—is so arranged that the out of state visitors can come in the last three days (9-11) of the tournament, fire the principal events and get in on the major prize money pots and awards. The first two days will be so programmed as to attract mainly the local shooters in the area.

From our experience at the first Flamingo shoot we can assure you that you're missing a real bet if you fail to include Miami in your spring shooting trip. The ability of the boys in that locale to provide just the kind of shooting you enjoy, and entertainment—well, they're famous for that.

NATIONAL MID-WINTER PISTOL MATCHES AT TAMPA

With a range newly enlarged and "freshened up" to take care of what probably will turn out to be a record crowd of handgun faithful, Tampa is getting ready to play the usual role of gracious host to the competitors attending the annual National Midwinter Pistol Tournament. The dates—March 14th to 18th.

The range capacity has been nearly doubled—80 targets, all to be electrically operated. A program much the same as last year's will be scheduled, except that the two restricted matches of the old schedule have been dropped and in their place five tyro medals added to each of the other events. A Center Fire Camp Perry Course match and two team events are also innovations this year. And—Smitty Brown, Tampa's wizard promoter of shootin' matches and good times, promises entertainment as only the Florida West Coast can offer. So write for a copy of the program, and plan to make the winter vacation a stay in Tampa over the middle of March. There'll be a lot of shooting to do, and you'll want to get your share of it.

WEST COAST METALLIC SIGHT TOURNAMENT

Southern California shooters are now fully realizing the importance of competition in N.R.A. registered matches. To this end the state association and the Southern California League will cooperate in 1939.

The first shoot to be dished up to the Southern California shooters will be the West Coast Metallic Sight Tournament, to be held on the range of the Glendale Rifle and Revolver Club, January 15th. The meet will be a registered event and will embrace a program of all metallic matches, which will be over 50-yard, 50-meter and 100-yard courses, with individual trophies for each event and an aggregate trophy for the three.

Beginning this year a permanent classification of shooters will be kept, thus correcting a confusing condition which has in the past been a source of aggravation in the awarding of class medals and trophies. The new system will include records of all classes of riflemen, and is expected to enhance the opportunity of the beginner.

CALIFORNIA

January 28-29: Second Annual Gallery Tournament at Napa, California. Sponsored by the Napa Rifle and Pistol Club. For programs write F. F. Penzotti, Route 1, Box D3000, Napa, California.

DISTRICT OF COLUMBIA

February 22: Second Annual District of Columbia Rifle Championship Match at Washington, D. C. Sponsored by Marine Corps Headquarters Rifle Club. For programs write Arthur G. Hamilton, Room 3321, Navy Building, Washington, D. C.

FLORIDA

*March 7-11: Flamingo Pistol Tournament to be held at Coral Gables, Florida. Sponsored by Florida East Coast Pistol League. For programs write A. T. Kelly, Jr., Box 43, Coral Gables, Florida.

*March 8-12: National Mid-Winter Small Bore Rifle Tournament at St. Petersburg, Florida. Sponsored by Florida State Rifle Association. For programs write T. F. Bridgland, 225 4th Street, North, St. Petersburg, Florida.

*March 14-18: National Mid-Winter Pistol Tournament in Tampa, Florida. For programs and match details write C. A. Brown, Box 253, Tampa, Florida.

GEORGIA

*March 4-5: Atlanta Metropolitan Small Bore Rifle Tournament to be held at Atlanta, Georgia. Sponsored by the Chattahoochee Rifle and Pistol Club. For programs write C. L. Jackson, 67 Luckie Street, N. W., Atlanta, Ga.

INDIANA

January 22: Small Bore Rifle Match to be held at the Izaak Walton League Club in Kokomo, Indiana. Sponsored by the Kokomo Y. M. C. A. Rifle and Pistol Club. For programs write Ed. E. Stouse, Y. M. C. A., Kokomo, Indiana.

ILLINOIS

January 21 to 29 inc.: Series of Rifle and Pistol Matches to be held in conjunction with the International Outdoor Sportsmen's Show at the International Amphitheater in Chicago, Illinois. For programs write F. E. Morgan, Jr., 2320 West 110th Street, Chicago, Illinois.

February 25 through March 5: Navy Pier Sport Show Rifle and Pistol Matches to be held at the Navy Pier in Chicago. For programs write F. E. Morgan, Jr., 2320 West 110th Street, Chicago, Illinois.

MARYLAND

*January 27-28-29: Second Annual Pistol Tournament at Baltimore, Maryland. Sponsored by 110th Field Artillery Rifle and Pistol Club. For programs write Captain Norval H. McDonald, 608 Medical Arts Building, Baltimore, Maryland.

NEW JERSEY

January 8: 50 Meter Small Bore Rifle Match to be held in Swiss Hall, Union City, N. J. Sponsored by the Swiss Rifle Association. For programs write Swiss Rifle Association, 457 Main Street, Union City, New Jersey.

*January 20-21-22: Fourth Annual Middle Atlantic Indoor Rifle Tournament to be held at Newark, New Jersey. Sponsored by the Essex Troop Rifle Team. For programs write C. E. Rousek, Jr., 507 Main Street, East Orange, New Jersey.

January 29: Fourth Annual Small Bore Match at New Brunswick, N. J. Sponsored by the New Brunswick Rifle and Pistol Club. For programs write W. F. Bley, 101 Haverford Street, New Brunswick, New Jersey.

February 10-11: Amateur Rod & Gun Club Indoor Team and Individual Tournament to be held at 447 Kearny Avenue, Kearny, New Jersey. For programs write R. B. Champlin, 18 Belle Terre Road, West Orange, New Jersey.

NEW YORK

*January 21-22: Niagara Frontier Indoor Small Bore Tournament to be held in Buffalo, New York. Sponsored by the Buffalo Revolver and Rifle Club. For programs write C. M. Bickers, 187 Leroy Avenue, Buffalo, New York.

OHIO

January 14-15: Indoor Small Bore Rifle Matches at Toledo, Ohio. Sponsored by the Toledo Rifle and Pistol Club. For programs write W. E. Lytle, Box 639, Toledo, Ohio.

*March 5: Goodrich Indoor Open Pistol Tournament at Akron, Ohio. Sponsored by the Summit County Pistol League. For programs write J. C. Kelsey, 133 Highpoint Avenue, Akron, Ohio.

WISCONSIN

February 12: 50 Foot Gallery Rifle Tournament to be held in the Armory in Viroqua, Wisconsin. Sponsored by the Viroqua-Westby Rifle Club, Inc. For programs write M. N. Daffinrud, Viroqua, Wisconsin.

* Indicates Registered Tournament.

TOURNAMENT REVIEWS

NORTH IOWA PISTOL TOURNAMENT

Leo Alstott will have to get a new medal case before long, if his wins at this year's North Iowa Pistol Tournament mean anything. Alstott succeeded in taking home a medal in every match in which he fired, with a final total of 10 first places out of fourteen events. His victories included winning the North Iowa Championship for the second year, and marking up a possible score in the .22 timed fire and a 291 over the National Match Course with the .38.

Only other competitor of the 33 attending the shoot to capture more than a single first place award was G. W. Paine, who took the Cerro Gordo Championship and a .45 caliber Police Course event. The initial match of the program, .22 Slow Fire, was won by E. T. O'Dell, and the .22 Rapid Fire match went to D. A. Thimmesch.

The shoot, staged October 2 by the Cerro Gordo Rifle Club at Mason City, Iowa, was favored with good weather for the entire day of matches.

NON-REGISTERED EVENTS

ILLINOIS—Pistol matches at Decatur. Some 42 devotees of the handgun turned out for the matches of the Decatur Rifle and Pistol Club, fired October 2. Star performers were Paul Spavor, St. Louis, who took the .38 caliber (three match) aggregate, and J. N. Newhall of West Lafayette, Indiana, whose proficiency with the .22 won the aggregate award in that class. A single match of the eight event schedule, the .38 caliber slow-fire match, went to Thamer Hill.—CHRIS KALAPIS.

FLORIDA—West Coast Small Bore Matches. A week-long rainy spell lifted just in time to permit a successful shoot at Clearwater, October 23. To get under way, St. Petersburg's Neil Cocking took the Individual Dewar with a 397, a top-notch score in the face of the fishtail wind that harried competitors. "Mike" Bridgeland, hard working president of the Florida State Association, took the 50-Meter Individual, while Kenneth Recker won the Long Range with a 194.

The West Coast Championship fell to Vic Wehle with 786 x 800, outranking Cocking, who fell to second. The much contested Two Man Team event was taken by the team of Abrams and McCready of the Clearwater Club with a 790 total. The Swiss Match, "endurance event" of the small bore ranges, was captured by McCready with a total of 35 bulls.—L. W. ABRAMS.

TEXAS—The Liberty Rifle and Pistol Club held its Fall Championship matches October 16th, with exactly fifty handgun shooters entered in the largest match. The first match of the day, a Police Course event, went to H. B. Carter, whose winning streak carried him into first place in the aggregate, with a total one point ahead of his nearest competitor. Another Police Course match, this open to .38's alone, fell to William T. Toney, who scored 292 for the thirty shots. The fourth and fifth on the program went to Don Lawrence, whose 199 and 287 tallied topped the 25 yard and National Match Course events. Carter came into the picture again to win the last of the individual matches.

CHALLENGES

The Enfield Rifle Club of Thompsonville, Connecticut, wishes postal matches with any team in the country: Any indoor 50-foot course, three or four positions, 5, 10 or 15 men to shoot, any sights, all or any designated number of scores to count. They would also like to book home range matches with any team within a 60 mile radius of New York. Contact Charles Petraska, Secretary, 19 Lincoln Street, Thompsonville, Connecticut.

The Viroqua-Westby Rifle Club, Inc., of Viroqua, Wisconsin wishes postal matches as follows: 20 shots prone, 20 standing, either or both, or 30 or 40 shot offhand matches, in teams of two, three or five. Make arrangements with M. N. Daffinrud, Viroqua, Minnesota.

The freshman girls' rifle team of Hofstra College is interested in negotiating postal matches with any other teams of like nature. Make arrangements through Sarah Healey, team manager, Hofstra College, N. Y. U., Hempstead, Long Island, New York.

STOLEN GUNS

Two .30-'06 Springfield rifles, serial numbers unknown. Stolen from Donald C. Fabel, 3155 East Overlook Road, Cleveland Heights, Ohio. Contax II camera, No. B60613, with Albada Finder; Sonnar f2 lens, No. 1887806; Triotar f4 85 mm. lens, No. 1890313. Stolen from L. C. Kencke, c/o Krim-Ko Company, 26th & Chestnut Sts., Oakland, California.

OBITUARIES

Clarence Hungerford Mackay. Born in San Francisco in 1874, at the time that his father was taking out of "Big Bonanza" and the Comstock Lode as much as \$800,000 a month, Clarence H. Mackay began a life that was to bridge the two most characteristic periods in the development of this country. Throughout these two periods Clarence Mackay was destined to play a major role. Mr. Mackay entered his father's office at the age of twenty, where he became the directing force in the conservation of the family fortune and in the extension of the family activities. Much of his life was devoted to the building of an international communications network of telegraph, telephone, cable and radio on a scale never before dreamed of. Clarence Mackay was the greatest single factor in communications development that the world has ever known.

This many sided man displayed still another intensely human side, and the one that marked him most as an individualist. Always an athlete and sportsman, Clarence Mackay was long known within the shooting fraternity. He took his shooting seriously. Just thirty years ago I distinctly remember watching him at his unique shooting gallery. He had mounted a stuffed stag on a small platform with wheels so that it operated on a narrow gage track, which made violent twists and turns down its long, fast gravity run. To watch Mr. Mackay place his head and heart shots in this flying phantom was a thrill never to be forgotten. As well as being an expert with the rifle, he was known as one of the best wing shots in America.

His interest in shooting extended to the target range, where his support has done much good for an untold number of shooters. In his strong attempt to avoid publicity it may safely be said that the extent of his activities in this direction will probably never be fully discovered. His closeness to the Roslyn Rifle and Revolver Club is well known and can be used as a fitting example of the thoroughness of his devotion to any cause in which he became interested. Often when a Roslyn team on tour arrived on location it found one of Clarence Mackay's checks already there—"to help with expenses". And there is the story of his interest in a FIDAC shoot, when he built a special range on his estate for that occasion.

Another side of Mr. Mackay's character was that of a collector. His interest in ancient arms and armor led him to bring together a superb private museum, in which he had for years gathered fine examples of the armorers' and gunmakers' craft. During his lifetime the Metropolitan Museum benefited largely by his gifts to their hall of armor and arms, and among connoisseurs he held an enviable position. His death comes as a very real loss to the shooting fraternity. As the New York Times summed up his life, "To the end Clarence Hungerford Mackay remained one of the last of our great

individualists. But it was an individualism modified by deeply generous impulses. He established himself among the nation's most useful citizens." No phase of this man's interests can better illustrate his character than his activity among shooters.—JAMES W. WYLIE.

BOOK REVIEW

"FROM HARLEM TO THE RHINE"

Published by Covici-Friede, New York City; 368 pages, 6" x 9 1/4"; 34 illustrations; price, \$3.00.

Precise, clear cut and straight from the shoulder, Maj. Arthur W. Little describes the phenomenal success of the 15th New York Volunteer Infantry which earned the sobriquet of "Harlem's Hell Fighters" during their 191 long days of fighting in the front-line trenches in the World War. Under the very shadow of heavy German artillery, and living for many weeks within the distance of it that an average soldier could throw a hand grenade, the courageous colored lads from Harlem laughed at physical hardship, and faced fierce attack with grim determination. Never to be routed from their defenses, and absolutely faultless in the execution of their manly job, they marched steadfastly to the Rhine, hailed by the French as they advanced, and kissed in reverent adoration not only by the exuberant native populace, but in solemn regimental reviews by leading French Generals.

Such is the subject matter of this unique saga of the World War, and of the colored race in America. Presented with frankness and respect, the book is studded with many humorous and sentimental incidents which portray vividly the characteristics of the colored soldier. The author, mature in his judgment and observation, arranged his story from notes from his war diary. A statement found in the opening pages of the book, an indication of the author's heartfelt sincerity, is as follows: ". . . If this story rambles and becomes emotional in spots, put it down to the fact that it is the story of a man's rare privilege of living his red-blooded days through—for a second time. . . ." Another quotation which strikes the keynote of the book is ". . . about sixteen months after that Peekskill encampment, the regiment, so humbly born and so amateurishly nursed through its early stages, won a citation of a great General of France which took expression in the pinning of the *Croix de Guerre* to its colors. Also, more than a hundred and fifty individual or personal *Croix de Guerres* had been won during those intervening sixteen months; and fifteen or sixteen decorations of higher grade.

"The 15th Heavy Foot was the self-made regiment of the American Army. It started without traditions, without education, and without friends. In all its career it never had even one thoroughly equipped first-class officer as a member of the regiment. It never had an American Army instructor come from the outside to try to teach it anything, until about two months after the Armistice had been signed, when, while waiting for a ship to take us home, in a preparatory embarkation camp at *Le Mous*, a young officer from a military school, who had never heard a hostile shot, lectured to the regiment upon the subject of the open sight in battle."

Many books have been printed about the American doughboy in France as observed by officers, enlisted privates, and outside professional observers, but it is safe to say that never was there portrayed a more unique or dramatic phase of that great human epoch than that of the 15th New York Infantry in France. This story marks a great step in the advancement of the vast colored population of the United States. It demonstrates clearly and beyond question that these humble people will some day share their full human responsibilities in a manner that may well be the pride of every citizen of the land. For the colored people have met one of the greatest tests of human bravery, fortitude, and hardship, and have proved beyond doubt that the colored race in America possesses a vast amount of untapped ability to contribute much toward the general advancement of mankind toward a goal of industry, happiness, and human understanding.—R. A. DEANE.

DOPE BAG - - -

Conducted by F. C. NESS

Scope Sight Conditions. The present trend in scope-sight interest seems to be toward better instruments and away from cheaper models. These latter have served the useful purpose of acquainting the poorest layman with the advantageous principle of aim of the telescope sight. It may be that this market among the simply-curious has become nearly saturated, and that these novices have now become sold on better instruments. There are some very practical low-price outfits, but none of them are good enough optically and mechanically to give a true picture of the possibilities or even a fair indication of the scope sight at its best. Therefore the reported drop in sales of cheap scopes may well be taken as a favorable sign for the future. When even the kid's Daisy air rifle now comes scope-equipped, it is certain that our country has become scope conscious, which, in the final analysis, was the destiny if not the ostensible objective of the flood of low-price scope sights released during the last few years.

Among the better low-price outfits were the 333, 344 and 355 Weaver scope sights. The last two were particularly slow as compared with our best American scopes as represented by the new 330 Weaver, Lyman Alaskan and Noske long-relief hunting scopes. Optically there was no comparison. Even so, we have encountered light and air conditions in varmint shooting which made the lowly 344 Weaver superior to the match scopes on other rifles in the car. In an all-day rain on the range the light and definition proved inadequate in the 344 Weaver as compared with the 15X 1 1/2-inch Pechar and the 1-inch 6X Unertl. However, on the very next morning we were shooting a few crows and hawks and found conditions reversed. In the fog the 6X Unertl proved more practical than the 15X, and when we could not see our mark with either of them we could still aim with that 344 Weaver. Simply explained, the higher powers magnified the fog to a degree which obliterated our targets. Very probably the 1-power would have been ideal there. The 330 Weaver, Lyman Alaskan and Noske, all internally-adjustable scopes of the same power-level, would have been appreciably superior to the 344 scope or any other low-price low-power, of course.

Opinions on the optical qualities of any given model vary considerably, I have noted. Even when a direct comparison of several instruments is possible, two viewers may not agree. I have seen one scope classed as the poorest of a number of competitive makes under comparison by one viewer and this same scope selected as the very best in the group by another. Possibly the instrument was imperfectly focussed for the first judge and in perfect focus for the second. Relative brightness of image or relative width of field or relative freedom from distortions near the edges or the blending of the field with the outside view are all influential on the opinion in such comparisons. The psychological effect is even more influential as was observed at Camp Perry one year when several shooters in turn swapped their scopes for the one in the representatives' rest on Commercial Row because each in turn became convinced the other's scope was optically superior to his own.

Personally, I would take any one of the three American standard models mentioned and feel well equipped optically. Any one of the three can be safely chosen on its physical qualities, such as size, weight and external appearance. Magnification, definition, eye relief, adjustment facilities, practical field and image brightness are much the same. The last quality is a fooler, as we can easily fool ourselves to believe that a good low-power scope transmits to the eye far more light than it can obtain without the aid of the scope. While this is seemingly so, it can be disproved on paper and by logic, because there is some light absorption by the lenses and some loss through reflection from the lens surfaces.

Relative luminosity is rated by the square of the diameter of the exit pupil in millimeters. A figure of 64 would mean an 8-mm. exit pupil, and one of 49 would mean a pupil diameter of 7 mm. That is about the size of the human eye pupil when dilated in darkness. In daylight it would be much smaller and still smaller in bright light. All light which falls outside the eye pupil does not enter the eye and may be discounted. The effective exit pupil is, then, the diameter of the eye pupil at the moment of use, and that of the scope must be as large, but need not be larger, to utilize all the light transmitted by the instrument. Since the size of the scope's exit-pupil is directly dependent upon the scope's magnification, the maximum efficiency prevails at that magnification which makes scope and eye pupil identical in diameter. The objective diameter divided by the power gives the diameter of the exit pupil. In bright light the eye pupil would be less than 3 mm., or 1/10th inch, and we would attain normal magnification in a 20-power scope with a 2-inch objective in such light.

At any distance the scope magnifies objects in its image without increasing their brightness, according to authorities on the laws of optics. Mr. Russell Wiles, Sr., has explained it to his own satisfaction by figuring it out as follows: If a perfect scope of normal magnification gathers and transmits to the eye 400 times as much light as the eye could gather unaided from the same object, this multiplied light would be spread on the retina of the eye to form an image having 400 times the area of the image produced by the naked eye. In other words, the illumination remains unchanged except for that loss caused by reflection from and absorption by the lenses in the scope. From this reasoning all we can reasonably expect from the most perfect instrument is a shortening of the apparent distance through magnification of the object to apparently bring it nearer the eye. A 20 power would shorten the distance to 1/20th of its actual extent, but we could see more clearly with our naked eye if we would approach the object to that point which would leave 1/20th of the original distance remaining.

For a practical test we used a 1-power scope which gave no magnification, an opaque shield over our Photrix exposure meter (light-sensitive) with suitable apertures of several diameters and a nearby 100-W bulb for the light source. The apertures in our shield were made with cartridge cases, .22-caliber (about 5.5 mm.), .30-caliber (about 8.5 mm.) and .35-caliber (about 9.5 mm.). The 1-power scope with no apparent magnification deflected the light-recording needle more (through these apertures) than did the direct rays from the bulb at the same distance. The same relative effect was obtained with a 2 1/4X scope, but more pronouncedly.

We were unwilling to believe that more light was transmitted by the scope and considered the possibility of an augmenting effect through concentration. However, when we moved the meter and aperture back beyond the normal eye-relief distance the larger circle of rays wasted on the surface of the opaque shield around the aperture did not change the position of the meter needle and indicated no loss in light intensity. Our only remaining explanation is that the objective lens being nearer the light actually placed the meter nearer the light source. However, without the scope the meter gave the same readings when moved forward or backward an equivalent distance. These inconclusive results would tend to disprove the theory that scopes must necessarily transmit less light to the eye than it can get unaided, unless the electric eye of the light meter is not affected by the area of the light beam as in the human eye but instead only by its intensity. At any rate, we know that the image in a good scope or even in a clean rear-view mirror appears to be brighter than the object appears in direct view to the unaided eye.

Improved Model 6-A. Savage and Stevens have quite successfully worked over their M-6 autoloading rifle to eliminate those minor "bugs" to which new models are susceptible during the earlier stages of production. We are glad to note they have retained the slots in the receiver, which we found desirable (if, indeed, not necessary) in our practical tests. This is a fine little moderate-price .22 plinking rifle of blow-back bolt type and self-functioning. The underneath, tubular magazine, holding fifteen .22 Long Rifle cartridges, is distinctive and without a competitor. The earlier samples gave some extraction and feeding trouble, and those without receiver slots blew particles back against our right cheeks. They also gave vertical groups. Later samples gave fine results.

The third and fourth samples not only gave fine functioning but finer accuracy as well. We are mentioning this for the benefit of those shooters who may have condemned the rifle on account of trying a particularly poor sample, which flakes will occasionally crop up in any make or model. I feel sure that such irregular specimens will prove to be very rare indeed in the present production run of these Model-6 rifles. The last one we tried with all brands of ammunition gave no failures out of 250 rounds. At 50 yards, Remington Hi-Skor gave 15-shot groups of 1.95 and 1.30 inches using the factory open sights. Under the conditions this is very good accuracy.

Now, this rifle (Model 6-A) has been further improved in feed and functioning. The stiffer closing spring has improved the breeching and therefore the accuracy. All the Peters and Remington loads, regular and high velocity, gave 15-shot groups no larger than 1 1/2 inches at 50 yards with the factory open sights. The smallest group with Hi-Skor (1 1/4 inches) had 14 shots in about 1 1/4 inch. Super Match, which usually beats most brands in low-price rifles, proved poorest in these several Model-6 Savage rifles. Even in the new 6-A Savage, Super-X was appreciably more accurate. Out of more than 100 shots with six different loads, there were no malfunctions of any kind.

It appears that the current Savage autoloader is accurate enough to demand sights more accurate than the open-type factory issue. The receiver is drilled and tapped for the Weaver bracket mount, and the low-price 333 Weaver or finer 330 Weaver could be conveniently used. The forthcoming 1-power Weaver should be particularly well adapted, on this \$16.00 autoloader, for plinking and game shooting.

* * *

Shooting Kit Kink. A Kennedy box sold by hardware dealers at \$4.50 to \$5.00 makes a good but heavy small-bore kit, when the plumbers' tray is lifted out and compartments fitted. The No. C324 is 24 1/2 x 8 x 9 inches in dark brown crackle finish with trunk lock and two snap locks and good handle. Walter E. Lytle says his holds all his equipment including scope and iron sights, spotting scope, stand, sling and gloves. Roomy, strong and heavy.

* * *

Bore-Sighting Kink. A friend gave us a right-angle prism cemented on a .30-06 case which chambers in many of our rifles. It gives a clearly reflected view of the bore and also of the muzzle aperture for convenient bore sighting. Since the image in the prism is viewed at right angle with the bore any convenient or comfortable position is permitted by revolving the case in the chamber. Any small, 1/8-inch, right-angle, prism lens of single 45° slope is adapted for this purpose. Pocket and flash-hole may be slightly enlarged by drilling orreaming if the purpose is bore inspection. A non-glaring blue light is best for the latter purpose.

Mannen On Duplex Loads. I am deeply interested in rifles and ballistics and spend a great deal of my time and money on that hobby, so I can readily appreciate your enthusiasm. I do not wish to give the impression that I am an authority on ballistics or that the duplex-loading is my invention. To start with I used it merely to overcome the low loading-density of midrange loads in large-capacity cartridges, when I found that a sufficient load of Sharpshooter, or similar powder, did not give the desired results and that midrange loads of progressive military powder, of 3031 type, did not always burn uniformly when the case was only a little better than half full.

My theory is this. Since the very dense military powder burns uniformly only between, say, 25,000 and 55,000 pounds, it must require some time for the pressure to build up from primer flash to that 25,000 pounds, and during that time the bullet must surely have moved part way up the bore. This first progress of the bullet seemed to represent wasted barrel length. I reasoned that, since pistol powder is designed to deliver its energy in eight or ten inches of barrel, and at relatively low pressure, it could be incorporated into the load so that it would give the bullet a flying start of a few hundred feet per second before the regular propellant took hold, and that the pressure peak of this pistol powder would be over before the rifle-powder peak came on, therefore not necessarily increasing the gross peak. However, I realized that the charge of quick powder would act as a very severe primer, tending to advance the pressure time of the regular propellant and it might be necessary to use a powder more coarse and dense as the major propellant. However, I found that this speeded-up combustion partly took care of itself, inasmuch as the bullet jumped ahead so much quicker and increased the powder space, that the resultant peak was not affected. In fact, it seemed to me that the pressure was slightly less, due perhaps to the fact that the bullet inertia had already been overcome.

Now, for some reason which I can only guess at, the proportion of these charges is very critical. If insufficient quick powder is used it seems to boost the pressure, due perhaps to the primer effect being still severe though with insufficient initial kick to get the bullet on its way before things got too hot. Upon the other hand, too much seems to have a residual pressure which carries on long enough to become additive to the pressure generated by the slower powder. It takes a great deal of patience and care to experimentally find this balance. Please believe me when I say that I was extra cautious and still I had some alarming pressures at unexpected times. It is my belief that there are these advantages: 1. Increased velocity; 2. less heat at breech; 3. lower ratio of barrel-time to muzzle velocity. I might add that I am not yet satisfied that the whole of my theory is true, and until I have equipped myself with the proper instruments I cannot go further. Since you mention that fine sportsman, Elmer Keith, I would like to say that I am one of his ardent admirers and certainly am not trying to chisel in on the credit of developing duplex loads. In fact, it was his article on the subject that gave me the impetus to go further into it than midrange loads. I believe that he and his associates have gone much further, and I would not be surprised to learn he uses a much better system than mine. You are quite right in your contention that any person trained in one science may readily apply their aptitude for careful and exacting technical operations to another science. My profession is electricity.

I do not care to be specific as to powder charges because of the very nature of these loads. However, I may say that I start with 5 to 7 grains of pistol powder and a 10-grain reduction (under full load) of the regular propellant. Using the same charge of pistol powder I work up the charge of the major propellant until pressure becomes apparent. If by that time the desired results have not been obtained I drop back and come up again, using either a different major propellant or a slightly different charge of pistol powder. Bullet weight and the shape of the case has much to do with the behavior

of the load, so that I cannot be more specific. I hope that if you do experiment along these lines that you will be very careful.

In a very short time I will have a chronograph and a few more aids to experimentation. I will then be able to carry on my experiments on a very accurate scale. I have devised a very simple electrical chronograph which is foolproof and accurate. The first crude model just finished worked swell, and when I'm done with it I hope to have an instrument not larger than your medicine bag, that can be set down anywhere and do the job of the very expensive laboratory apparatus. If it turns out as good as I hope, I may let the boys have it. I am eager to fraternize with other riflemen and would exchange notes freely. I hope you will keep in touch. I am thirty and married. Dad and granddad both were riflemen. I have "Old Ben's" muzzle-loader still in A-1 shape. Dad stands by the .303, and, although he is seventy-odd, I have to get right down to business to trim him on target. I have my home and workshop on the south shore of Lake Huron and there is always one direction safe for shooting. I have a South Bend lathe, milling and grinding attachments, etc., also make my own bullet molds, cherries, dies, and presses. I have a Department of Mines permit for importing explosives, and, upon the whole, I feel that the gods have been generous.—B. FRANK MANNEN, Sarina, Ontario.

* * *

Baugh on Artificial Shooting Pupils. The anatomy of the eye and functioning of its mechanism, the response to light and the adaptability of the shutter (iris) of the eye controlling the size of the pupil furnishing good vision, depth of focus, definition, projection, stereopsis and the retinal adaptation to light and dark, all depends greatly upon the pupil, its size and proper response to light reflexes.

Many pupils are too large, slow and sluggish, some respond slightly, others not at all, due to many causes, principally to errors of refraction, diseases or systematic disorders and age.

If we could only adjust the (iris) eye shutter or pupil like we do the camera shutter, just step it down, we could get much finer definition and depth of focus, but that is out of the question. However, we can have an artificial pupil the "Pin Hole" which does just what the small aperture in the camera produces (a better picture), better visual acuity for both far and near.

After we know all of this, where are we going to place our artificial pupil? There is a proper place; any optometrist knows where to place lenses to get proper lens effectiveness and that place is very near the anterior principal focus of the eye which is approximately 14 millimeters in front of the apex of the cornea of the eye.

Anyone using an artificial pupil or "pin hole" should make it or have it made of a dead black material; not metal, as metal of any kind will cast reflections from the edges of the holes, and any scintillating flickering rays of light striking the retina suddenly will blind and confuse the visual apparatus in making proper responses, as these sudden light stimuli interfere with efficient performance.

The size of the artificial pupil for all-around purpose is 1.8 millimeters, approximately 9/128 of an inch. This will give ample definition and illumination provided that we have sufficient illumination to give good minimum visibility and minimum perceptibility.

It's quite necessary to have the holes in your disc countersunk from both sides to a knife edge first to protect this edge from injury in handling it, essentially to make the hole appear as nearly round as possible when looking through it obliquely, and that is the way the marksman looks when shooting.

If you should make or have made a Multiple Pine Hole disc the holes should not be closer than 5 millimeters. If closer than that when placed at 14 millimeters in front of the cornea the holes will appear to overlap and blur, or cause confusion of ring edges overlapping. The many-hole disc is preferable on account of speed and better concentration as all rings of diffusion are eliminated (caused by spherical and chromatic aberration).—MATOK OPTICAL COMPANY.

TRADE DOPE

Niedner Barrels are evidently much harder and more resistant to wear and erosion, over the past few years, than formerly. Fine reports on the accuracy and durability of these barrels have been received. There has been some confusion over the reason for this appreciable improvement, some ascribing it to the purchase of blanks of Winchester proof steel. While the Niedner Rifle Corporation does use the same nickel and Chrome-Molybdenum alloys that are found in Winchester barrels, they do not get barrels from Winchester or any other barrel manufacturer. Further, they do not use the Winchester heat treatment. Their manufacturer heat-treats the Niedner blanks about 20 points Brinell harder using the identical composition. They drill, ream, rifle and chamber their own barrels, but will chamber rifled blanks furnished by their customers.

* * *

B. & L. Zephyr-Light binoculars are made of light-weight alloy in body for those who want to travel light. The most popular sizes begin this new procession. These are the 6 x 30, at \$80.00, and the 7 x 35, at \$94.00, both central-focusing and complete with leather case and strap. Another new Bausch & Lomb model is the 8 x 40 with a field of 33.6 feet at 100 yards, an exit pupil of 5mm. and the relative brightness of the 6 x 30 and 7 x 35 combinations. The 8 x 40 weighs 30 ounces. It is available with central focusing, at \$98.00, and with individual focusing, at \$93.00. Both complete with carrying case.

* * *

Hultgren Carving on gun, rifle, revolver and pistol stocks, will be sold at checkering prices direct to shooters. Carving dresses up a fine arm more than checkering, affords a better purchase for the hand and is far more durable than checkering. Hultgren's carving was on display at Camp Perry last fall in the booth of the Westchester Trading Post, which firm continues to sell his carving. N. Hultgren operates at Altoona, Pa.

* * *

S. D. Myres' Catalog of 31 pages of illustrations came in from El Paso, and the rich, floral, leather carvings displayed reminded me of the beautiful rifle case carried by W. R. Weaver, the scope manufacturer. His employees had Sam Myres make it up as a Christmas present to Bill. Myres makes Border Patrol equipment. His carved leather line includes Kodak cases, bags and gladstones, billfolds and even leather-covered buckles. What caught my eye was his stiff-backed, waist-fastened Detective Wonder which holds a short, pocket revolver upside down, under the arm pit, ready for quick draw in street clothes. Among others is an ornate pair of leather chaps made for Gene Autry, the popular movie star.

* * *

Single Specimen Cartridges is the subject of a 57-page booklet received from P. & M. Collector's Supply of Richmond Heights, Wash. Dated, July 1938. Price \$0.25. This is the first cartridge list received in booklet form. Not illustrated.

* * *

Universal Loading Tool Co., of 2690 Keeter Blvd., San Diego, Calif., make a vertical production tool complete in one caliber at \$47.50 including powder measure. It is guaranteed to give finest possible accuracy or money refunded. Parts for added calibers are somewhat expensive, at \$15.00 complete. Dies for standard calibers are \$12.50 complete. Resizing dies are \$8.00, standard, and \$20.50 for special calibers. Bullet seaters are \$6.50, standard, and \$18.00, special. Machine appears to be well designed, strong, fast and accurate. Claimed to load 400 pistol cartridges per hour just like factory ammunition. Covers everything from the Hornet to the .300 Magnum.

Vest Pocket Sport Glass, rectangular in shape like a thick cheroot case, is made of black plastic by Bausch & Lomb. It measures 2 1/4 inches, weighs 6 ounces and costs \$19.50 with leather, zipper case. In 3-power the width of the rectangular field is 45.2 feet at 100 yards.

* * *

Capt. A. H. Hardy, the well-known exhibition shooter, has retired as Peters demonstrator and salesman to devote his entire time to the manufacture of fine leather goods, which business he has carried on, via mail order, during his 33-year active connection with Peters Cartridge Company, instructor of the Los Angeles Police Department and expert movie shooter for Hollywood studios. Hardy holsters, belts, and gun cases, plain and fancy, have built a reputation for quality and exact fit throughout the country and in Canada. It is certain that Captain Hardy knows guns and leather. His full attention to the business should assure greater prestige than ever for Hardy holsters. He learned the saddler's trade in Omaha back in 1893, joining Peters in 1904. He originated the right-and-left-hand and Hogans-Alley matches at Camp Perry. As a Hollywood firearms expert he did the shooting in the Annie Oakley picture and for the Hell's Angels film. As an exhibition shooter he has long runs on small flying wooden blocks to his credit. As a demonstrator he shot as a member of a revolver club in Denver, about 1913, where he did some fine 300-yard shooting with his .38 Special, and in Los Angeles. A few years ago he put on an exhibition at Camp Perry, shooting revolver, rifle and shotgun.

* * *

Gebby Knockout for stuck cases is merely a metal-container holding mercury and small enough to drop freely through a .22 bore. We carried it on our last hunting trip but did not need it. However, it is useful on the testing range where heavy experimental loads stick cases in the chamber at times when the cleaning rod is not available. Made by J. E. Gebby of .22 Varminter fame.

* * *

Pres-to-Oiler is as easy to fill and carry as a fountain pen, which it resembles. Its transparent body contains lubricating oil instead of ink, and instead of writing it releases 1/10th drop of oil at the end of its small steel valve plunger at each push. This steel point can be pressed against usually inaccessible spots. Another advantage is amount control, as ten presses are required to deliver a full drop of lubricant. Price \$0.50. Made by the Dill Manufacturing Company of Cleveland, Ohio.

* * *

Lyon & Coulson, Inc., issue, from Buffalo, N. Y., a 25-page illustrated catalog of gun cases, pack sacks, duffle bags, shooting coats, shell vests and shell belts. They feature woolskin cases and holsters for gun protection.

* * *

New Wilson Wonders. We have ordered a case headspace gauge for measuring cone-to-shoulder overall of any cartridge from .22 Hornet up, and a wall-thickness gauge for measuring brass on any part of a case neck. These desirable instruments are new tools developed and made by L. E. Wilson whose throat gauges, cartridge gauges, headspace gauges and shell trimmers we have mentioned in these columns. Price, design or delivery date, unknown.

* * *

Double-Nozzle Dipper or bullet-metal ladle is made to fit your double-cavity mold by George F. Grant, 22 Sycamore, Mill Valley, Calif. At present he is bronze-welding nozzles to Lyman dippers, at \$1.75 complete. He will alter your own Bond, B. & M. or Ideal dipper at \$1.40. Purpose, to avoid usual lack of uniformity in filling double-cavity molds.

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Portable Rifle-Protector Rack is available for range use by team captains or at turkey shoots. It holds 8 rifles and is covered by a waterproof cover. It folds compactly and has a handle for easy portability. The standard in the middle of the circular base is of seamless brass tubing in square shape. The other parts are aluminum castings. The duck-rubber cover is lined with flannel to absorb any moisture which may form inside through condensation or carried in on the guns in wet weather. It weighs only 14 pounds and takes up little space. The padded muzzle-holder on top may be locked to protect the rifles when closed. Team captains should write to Walter Groene, Hooper Ave., Osbornville, N. J.

* * *

Lyman 58E Receiver and 77 globe front sights for target shooting, is the good news for owners of the new Winchester Model-75 Target rifle. The No. 77 has 9 inserts and a "K"-style (dovetail) base to fit the Winchester base on the muzzle. The 58E is a micrometer wind gauge model fastened by the two screw holes in the Winchester receiver. Both sights are of the factory scope-height designed for the scope-height comb. Because of the unacceptable play in the Winchester target sights we think this fine-barreled M-75 rifle should be purchased without sights (at \$24.95). We have learned it is also obtainable with a sporting-type stock.

* * *

Wasson Sight Protector for Colt adjustable front sights is a slip-on of non-marring, non-rusting material which keeps the sight black in place and protects the sight from catching in a sheepskin holster. A smaller one is coming out for S. & W. front sights. Made by H. P. Wasson, identified with Tip-Up Apertures.

* * *

Wisler Kit "22" mentioned last month is heavy and expensive, but swanky looking; one of the finest small-bore kits we've seen. We put all our junk in it and then added the tray from our old kit. It measures, roughly, 8 1/2 x 8 1/2 x 2 1/2 inches, has a trunk lock and two snaps and a handle someone was unable to loosen by standing on the case and tugging. The tray which lifts out has a long scope compartment which held 5 boxes of .45 Colts plus 19 boxes of .22 Long Rifle. The remaining two-thirds of the tray has two big compartments and a smaller one which holds two cartons of F.A. Service cartridges in clips. The final small square holds six boxes of .22 Long Rifle. The sample is black, lined with blue velvet. A beauty.

* * *

Shooting Board is made by W. D. Hubert, 619 W. Jefferson St., Joliet, Ill., to take the place of bench rest or machine rest. It is a cushioned rifle-holder permitting shoulder rest or complete rifle control without body rest, and adapted to high powers as well as light rifles. Rest clamp is cushioned by springs and felt. Can be used on a bench, table, big box or bench rest. It is adjustable for elevations. Felt pad used under buttstock toe as a complete rest, and free recoil is permitted the rifle. He hopes to manufacture them at \$15.00, and we hope to give a complete report of our results in the next issue.

* * *

Around-Body Sling is designed by J. O. Lewis, maker of the pistol-sight gauge reviewed last month. This strap goes around the body under the arm and the sling ring is hooked into

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* * *

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LETTERS

Cunningham on Krag Bullets. I read your answer to C. M. S.'s letter requesting advice on the .30-40 for moose that you are recommending the 220 or 225-grain bullets. My own experiences and those of my hunting companion might be of interest to you.

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WESTERN TOOL AND COPPER WORKS
P. O. Box 856
Oakland, Calif.

In the fall of 1936 we had the opportunity to hunt moose in Quebec and were fortunate enough to both secure moose. He was using a Krag .30-40 with a 220-grain bullet loaded just under maximum. Although his first shot hit part of the spinal column, his next shot broke one fore-shoulder, his third shot passed through the lung cavity (not touching the heart), as did his fourth, the moose dropped for the first time when the fifth shot broke his other fore-shoulder. The distance was approximately 175 yards.

I used a .30-'06 with a 220-grain Western bullet in front of a handload of 4064 also just below maximum. My moose although hit in the fore-shoulder (too far forward) from the side so that the bullet came out the other fore-shoulder (expanded to about .35 caliber) jumped into a lake, swam 75 yards, came out on the far bank. I there hit him again with a shot from the rear which stopped halfway through his body. A broken leg on a succeeding shot dropped him but he would have risen if I had not finished him. The first shot was at about 150 yards and the next 75 yards or closer.

These lamentable results led us to abandon the 220-grain bullet for the Winchester 172-grain pointed expanding on our trip to Alaska in 1937. I used 50 grains of 4064 in a .30-'06 and my friend used 39.5 grains of 3031 in his .30-40 Krag. Again we were fortunate in both securing moose. I shot too high behind the fore-shoulder at 300-350 yards but dropped my 64½" moose with one shot, although I did use a finishing shot. Mr. Mallory used one shot at 200 yards which passed through the liver. His moose was dead when he reached it.

I might add that the two bears I killed on this trip were killed from one position with three shots. One was hit through the paunch but was dead when I reached him. The other was down with a broken back and finished with a heart shot.

The 172-grain bullet has proven superior in both trajectory, accuracy, and killing power in our cases in both .30-'06 and .30-40, and although four moose and two bears are not a fair test, I think you will find that a great many hunters who shoot continually will back the medium-weight bullet which does a great deal of internal damage and imparts its full energy against the too solid, too heavy bullet which passes through with insufficient expansion.—FRANK R. CUNNINGHAM.

Answer: My sincere thanks for your letter of November 30 reporting on your experiences in shooting big game with various loads in the .30-'06 and in the Krag rifle. It is just such experiences and reports as this one on which we form our opinions about the effectiveness of various loads, calibers and bullets. One man has only one opinion and, of course, his experiences must be comparatively limited. Previously, our experience and that of others which we had gathered indicated that the heavier bullet was the more effective in the Krag, because no great velocity could be developed in the cartridge to make lighter bullets effective. Our own experience and acquired information seemed to indicate that the 220-grain type of bullet was the best in the Krag even on such light game as deer and black bear. However, we also knew that our 190-grain or 200-grain lead-alloy gas-check bullet was very effective at velocities as low as 1750 f.s. In handloads for deer I have recommended the 150-grain bullet and the 145-grain copper-point bullet at 2700 f.s. in the Krag for deer. I think too the Western Tool & Copper Works 172-grain expanding bullet would be effective at 2500 f.s. These handloads were not considered in my reply from which you quote.

I am now glad to learn that you found the factory 180-grain load so effective in the Krag rifle on moose and similar game, and I am glad to publish your letter for the information of our readers.

(It should be noted that Mr. Cunningham used the .30-'06 and not the Krag, which is quite another matter. Also, that Mr. Mallory placed the 180-grain bullet more effectively, which does not provide us with any comparison.—F. C. N.)

On .22 Hornet Revolvers—I have had correspondence with Bud Dalrymple, Scenic, South Dakota, on the subject of converting a .44-40 Single-Action Colt to smaller caliber, .22 rim-fire, .23 rim-fire, .25-20 Repeater or .22 W. C. F. The work to be done by installing new .23 or .22-caliber barrel, and bushing chambers, converting rod ejector. Would this be satisfactory? Want a gun for trap-line and general field use. Intend having a small Luger gold bead front and Colt target rear. Would a gun converted in this manner stand factory loads in .22 Hornet? Which would be the best for my purpose in above calibers?

I have a .32 S. & W. Long, Special 6-Shot Iver Johnson with 5 inch barrel and Western grips. This gun handles .32 Short or Long S. & W. cartridges. It has the poorest sights of any gun I ever handled. Does any company make sights for this? My wife took a fancy to it and would like to put it in shape. How would it do to build up the rib back by barrel catch to accommodate S. & W. target sight? Or would the sights on the I. J. Supershot fit?

How about the Sears Ranger over-and-under? Understand it is made by Marlin.—L. R. B.

Answer: It would be practical to convert your .44-40 Single-Action Colt to the .22 rim fire, .23 rim fire, .22 W. C. F. or .22 Hornet. The .25-20 repeater has a very abrupt bottleneck and is not well adapted for handgun use and you would gain little by using it over any of the others. If you are seeking power the .22 Hornet is the best choice.

This work is regularly done by R. F. Sedgley, Inc., who makes a thicker top strap as well as bushing the chamber or furnishing a new cylinder. The charge for his work in the .22 Hornet caliber is \$40.00 and he regularly alters the Remington cap-an-ball, the Colt Single-Action, the Colt New Service, the Model-1917 revolver and others to this caliber. With a 8-inch barrel he gets 1650 f.s. and with the standard length barrel about 1450 f.s. from the regular Hornet load, and not the Hi-Speed variety.

For the .22 rim-fire caliber Sedgley also does this work, but I have also had excellent reports on such .22 rim-fire conversions by W. H. Church, Fullerton, North Dakota, and I would recommend his services in this caliber.

I have fired the Sedgley Single-Action .22 Hornet and found that it gave no recoil, but an ear-splitting report. I managed to score 86 at 25 yards with it offhand. It is decidedly unpleasant to shoot in a gallery. I believe I would prefer the 7½ or 8-inch barrel in this caliber.

Relative to your .32-caliber Iver Johnson revolver I would suggest that you have it fitted with the Iver Johnson Super-Target sights at the plant. I have one of these 6-shot Iver Johnson revolvers in .32 S. & W. Long caliber with those kind of sights as found on the Super-Sealed target revolver of the same makes, and with it I have scored as high as 87 at 50 yards offhand.

The Sears Ranger over-and-under shotgun is nothing more nor less than the Model-90 Marlin which was reviewed in the Dope Bag quite recently. For the Sears price of less than \$30.00 it is a remarkable value. While it shoots and handles well it is a bit heavy in weight and in trigger pull and seems stiffer and less handy or fast as compared with the more expensive Model-32 Remington over-and under costing three times as much.



THE ARMS CHEST

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REMINGTON No. 30S Express .30-06, perfect, hand polished stock, Lyman 48 and ramp front sight, \$48.00. William Tollagson, 3122 West 16th Street, Chicago, Ill. 1-39

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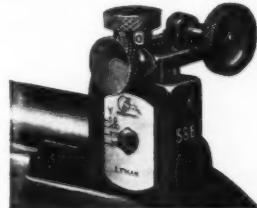
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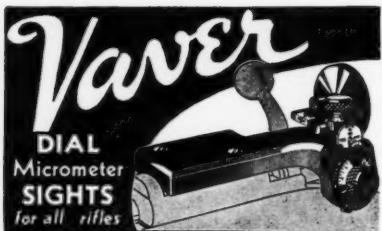
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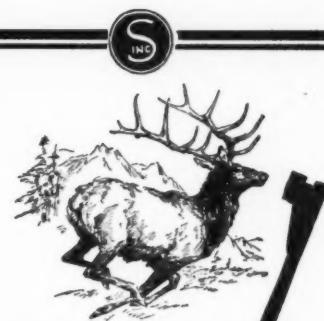
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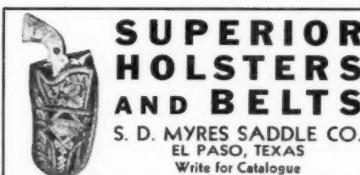
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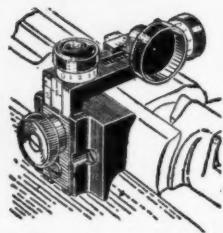
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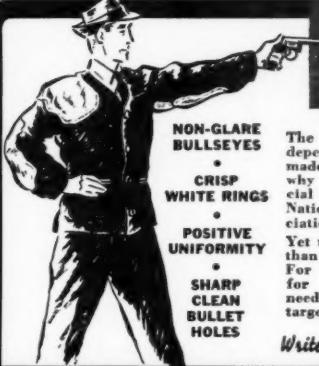
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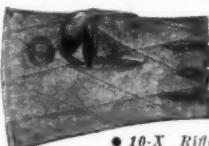
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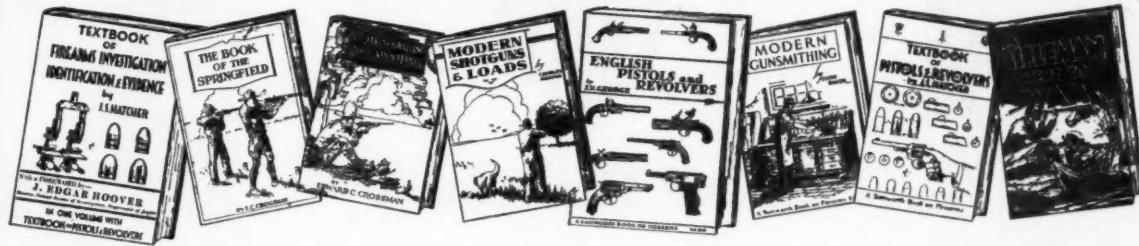
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